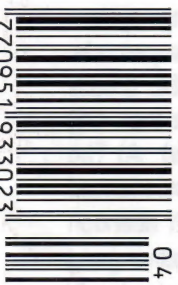




WORLD

Q	h	v	c	g	s	c
c	S	v	j	k	a	s
e	j	P	n	m	l	o
j	l	t	R	v	b	u
h	i	p	n	E	n	c
f	l	s	d	j	c	s
p	x	m	d	f	q	i
j	f	h	j	d	u	c
Q	L	S	C	E	N	E
d	h	c	S	a	s	k
j	d	u	R	h	g	i
j	s	i	O	j	t	g
c	d	g	T	y	k	i
e	p	r	A	z	a	e
w	M	x	U	j	h	g
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				s	a	w

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THE FANTASTIC SPECIAL EDITION OF **LIGHTNING**

The Program for Everyone

If you are using a QL in any shape or form or with any accessory (thus including the new QXL 68040, Gold Card, Trump Card, ST/QL, Thor, PC CONQUEROR, Minerva, TURBO, and even the humble unexpanded microdrive-only QL), you really should be using **LIGHTNING SPECIAL EDITION**. If not, you are very severely and unnecessarily (our program is quite inexpensive) slugging your system's performance. The superb **LIGHTNING SPECIAL EDITION** will both automatically and very significantly accelerate almost every aspect of QL operation - whatever it is you use the QL for. **"More than 10x is achievable and 2x-4x is typical"** (quote from page 24 of review in April '90 QL World). The speedup ratio is independent of the system. However fast or slow your hardware, **LIGHTNING SPECIAL EDITION** will accelerate it much further. All recent versions of our software are carefully optimised for 16/32 bit processors, without compromising 8 bit working. The program has not got any adverse side effects at all, and it fixes QL anomalies. Installing it is a fast, once-only operation that takes two or three minutes and which assumes & requires absolutely no knowledge of programming or of anything even remotely technical about the QL: you are simply asked whether you wish to speed up text, maths and graphics individually, or everything. Unless you have a very good reason, opt for everything! Then **LIGHTNING SPECIAL EDITION** copies itself onto your boot-up disks, instantly modifying their boot files. Now every time you start up, full throughput acceleration is automatically invoked and everything goes much smoother and faster. In case you think that this is too good to be true, we quote verbatim the concluding para of the Sinclair QL World review: **"I could not fault LIGHTNING SPECIAL EDITION on anything. It is a clear winner and a best buy at £49.95"**. The program includes a bundle of accessories (change fonts

etc. in Quill etc., smooth scrolling and much more) and tweaks (vary maths and/or graphics precision, a null device and much more). Stop reading the manual where we tell you to - at around page four - if simple use is all that you want. The program also includes 84 excellent small fonts for use with both **PERFECTION SPECIAL EDITION** and **PROFESSIONAL PUBLISHER**: a real bonus!

LIGHTNING SPECIAL EDITION includes both a ROM (for plugging in at the back of your QL - no screwdriver needed) and a disk. As some QL hardware (QXL; Gold Card for speed reasons) is not ROM-friendly, or you might have something already plugged in (ICE, TK2 if not already on your disk interface), you can get a version of the program minus the ROM for just **£39.95**: this is the **GOLD CARD VERSION**. If you have two QLs, say one of them a QXL / Gold Card and one "ordinary", you should go for the full **LIGHTNING SPECIAL EDITION**, as you can use the ROM on the second machine. Extra ROMs cost £10 if ordered at the same time as the program, else £15.

Q1) What programs benefit from **LIGHTNING SPECIAL EDITION** (LNGSE)? A) All, including emulators. Perhaps **PERFECTION SE** benefits most. Q2) Why didn't you build it into all your programs? A) It would be very inefficient to do so because of multitasking. Also, LNGSE benefits all programs (even Quill etc.), not just our ones. Q3) Does the QL "know" it is running LNGSE? A) No. And it isn't "running" LNGSE either. In its first and only second of life LNGSE pages out, using a door deliberately left open by the QL's forward-thinking designer, large chunks of QDOS (AH, JM, JS, MG and all Minerva operating system variants) and replaces them with our fine-tuned supercode. Q4) Is it a compiler? A) No - TURBO is. LNGSE greatly improves the performance of TURBO'd programs too! Q5) Why is LNGSE so cheap? (happy users ask this) A) The truth is, we know that once you have experienced **LIGHTNING SPECIAL EDITION**, you won't abandon your QL. As **THE** QL software publisher, that is rather good news for us. Q6) Give me one more reason for buying it. A) Look at our **SPECIAL DEALS**, and think. Even before any seasonal discount, LNGSE Gold Card would add a mere £30 to the price of **PERFECTION PLUS SPECIAL EDITION**, for example. **SPECIAL DEALS** allow you to get programs for free, even to get us to pay you to buy them...



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April 1993

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PERFECTION SPECIAL EDITION

AN EXCITING NEW DEVELOPMENT - Version 5!

In the case of many word-processing objectives, the best way to implement them is pretty clear. There are some areas, however, where individual tastes and preferences can differ very widely. One such area is the reformatting of text - the adjustment of previously entered text to conform to margin, indentation, justification and pagination settings after you go back (or forward!) to it and make alterations, either by hand (by typing and/or deleting) or by using individual or global search and replace. When new text is being entered at the foot of the document or at the end of the current paragraph, all word-processors behave virtually identically, obeying the current settings - it is in the matter of amending existing text (inserting, changing or deleting) where conflicting philosophies apply. Text-handlers differ in their treatment of this: Editor, Wordperfect, text⁸⁷, Quill, AmiPro & Word all behave differently.

Editor, Spy, most versions of Wordstar, and all technical editors leave all reformatting to you. While at first this may seem harsh, this manual mode gives you a lot of control, makes the handling of tables and other technical applications better (do you really want to reformat that BASIC program into a single paragraph?!?), and is easy on the eye. But you must remember to reformat as the program won't, and this may be an annoyance. If you move away and forget to clean up, your printout will probably be incorrect.

Wordperfect **will** auto-reformat, but generally only when you move the cursor from the line containing the change. Changes you make while your cursor is within the line will only cause the line to contract or expand up to the margin. This too is easy on the eye, but there is the drawback that the overall picture of the page may be inaccurate while you are inserting or amending text, and that when you move the cursor away (and hence trigger the auto-reformat), you may not notice any undesirable effects caused (e.g. widows, orphans, inappropriately positioned page or line breaks).

QL Quill auto-reformats, but because of its slowness it uses a trick: often when you start inserting within the middle of a paragraph, Quill splits the para in two and creates temporary blank lines to separate the parts. This means Quill does not need to reformat until you have finished amending. What you type appears at the end of the first part of the paragraph. This has the advantage and disadvantages of the Wordperfect method, but additionally the split can be a bit disconcerting and the screen display can be grossly wrong during the editing. Also, we know of a bug that causes a line to be shown twice on the Quill screen while it is only really present once: you will regret it if you delete the apparent duplicate as an unduplicated line will get deleted without warning.

Word (a fine PC Windows program) auto-reformats in situ, in real time, as-you-type. But if you have a long complex para and you are editing near the top of it, you may notice the time taken for the reformat *even on a 486/66MHz* (QL users should note that this is >20 times faster than a Gold Card i.e. about the speed we expect from a *fully tweaked* QXL). Also, cursor movement will appear to some as a bit erratic (which is hard on the eye) especially if right justification is on or if the on-screen fonts are proportional. It can also be quite distracting to keep seeing the ripple effect of changes as text on lower lines is reformatted. AmiPro is somewhat better in this respect as there is a small delay (almost a second) before AmiPro refreshes lower lines on the screen: easier on the eye.

The new release of **PERFECTION SPECIAL EDITION**, version 5, gives the user the best of all worlds, by combining the best of all the above methods and avoiding all the drawbacks. The user is given the opportunity both to pre-configure and to adjust at will from inside the program, the desired auto-reformatting behaviour. The options are to either select Never (giving Editor-like action for technical users: this is what all previous versions did, where you had to press a key to get the para to reformat after re-editing it), Instant (giving in-situ real-time automatic reformatting as-you-type, as does Word) or User-delay, the most flexible setting of all

(giving slightly delayed updating of lower lines of text, like AmiPro, but also - and unlike AmiPro - giving you, the user, full control over how long the delay is). No other w.p. is this able.

On User-delay the user is free to set any delay from 0.1 seconds to 99.9 seconds in 0.1 second steps. About 1-2 seconds is best for slow typists, and 1.5 seconds is thus the default. This means that you are not hassled by continuing screen changes on lines below the one you are editing and concentrating upon, or shufflings around on the current line caused by right justification etc. So the Word disadvantage (much more noticeable on slower hardware) is avoided, without recourse to the Quill temporary blank line nuisance. When you pause in your typing for longer than the set delay, **PERFECTION SPECIAL EDITION (SE)** automatically tidies up, without you having to do anything (getting around the Wordperfect and Quill drawback of making you mentally adjust for the screen remaining occasionally out-of-sync with reality).

If you are a reasonably fast typist, you can experiment with shorter delays (say 0.5 seconds). If you are a speed demon, set the delay to 0.1 seconds and see if you can ever manage to "get ahead" of the program! Settings of under 0.3 seconds are indistinguishable from 'Instant', when reformatting always keeps pace.

On the User-delay setting **PERFECTION SE** will, as does Quill and Wordperfect, auto-reformat *instantly* (no matter how long a delay you have set) if you either navigate off the line or invoke **any** menu or direct command (including Save, Export etc.). This means that you are never left with the document "wrong".

There are many other improvements in this release of **PERFECTION SE**. One in a similar area is with SHIFT/CAPS, the one (out of five) manual reformatting commands that allowed reformatting of a para from the current line onwards without affecting previous lines. SHIFT/CAPS will now additionally obey the indent margin (which matters if the cursor is on the first line of the para) and, more significantly, it will leave the cursor position unaltered within the text (previously, it used to move the cursor to the start of the next para). Other reformatting commands are unaltered, so you can still step through paras reformatting easily.

PERFECTION SE v5 costs £99.95, or £139.95 in **PPLUS SE** incarnation (i.e. with spellchecker, dictionaries & maintenance programs), less discounts that can total 40%. There is no special upgrade price to v5 for existing **SE** owners - only DP's usual reasonable £10 update charge (but as an offer to **QLR** readers, open for four weeks from the date of publication of this issue, existing **SE** or **PPLUS SE** owners can get the upgrade totally free provided they order other DP programs of total value (after all discounts) exceeding £25). To upgrade from the STANDARD version of **PERFECTION** costs, as with all upgrades, the difference in price plus just £10, i.e. £50. The user should not return any documentation, just the one master disk. Remember special deal prices, which give discounts of up to 25% if more than one program is purchased (or upgraded) at the same time (do you have **LIGHTNING SE**?). To get the very best out of **PERFECTION SE**, use it with **PROFESSIONAL PUBLISHER** (and perhaps with attendant **TOOLBOXes** and **FONT ENLARGER**), when you can output text to any number of shapes of any desired complexity (not just boring columns!) throughout maintaining pixel proportional spacing and having thousands of fully WYSIWYG fonts to choose from, whatever your printer....

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OTHER SPECIAL PROGRAMS FROM DP

PC CONQUEROR GOLD SPECIAL EDITION The rave review on pages 16 to 19 of March 1993 QL World really says it all: "an excellent product", "much faster, more compatible and capable than its predecessor". There are many extra features too. You can also get DR-DOS v6.0 (with Netware Lite free), which is the best DOS of all. And if you are buying or have bought this DOS from us, you can buy preconfigured DOS pseudo hard disks (on ED diskette) for £15 each (specify if you want compressed i.e. 6Mb capacity, or 3Mb: or have one of each for £25).

QMATHS MATHEMATICAL SYSTEM PART TWO A superb companion to QMATHS, with maths, stats, Abacus stuff, expression evaluation, terrain plotting, the fastest Mandelbrot routines and much more. Note the special price for 1+2.

TRANSFER UTILITY SPECIAL EDITION Copies and transfers, with optional sorting, case-changing, formatting, statistics and more.

QUICKLASER Superb print output from PRO PUBLISHER to HP Deskjets, Laserjets (the latter with 1Mb of RAM or more) and all compatibles. QUICKLASER costs just £19.95 all inclusive.

LIGHTNING SPECIAL EDITION GOLD CARD VERSION Optimal speed from higher specified QLs - GOLD CARD, QXL, ST/QL, Thor XVI etc. Free upgrade from standard version if you return ROM + disk and are ordering something else at the same time, else £10 charge.

PERFECTION PERFECTION PLUS

Perfection is the finest word processor available for any computer. We have received dozens of letters from happy users saying just this... and all of these letters were unsolicited. "Superb" was used most often.

Perfection manages to achieve all the sophistication of the most complex PC word processors while still using a user interface as friendly as Quill's. Perfection has a dual system of user control: menus while you are familiarising yourself with the program, and direct commands for the time when you feel ready for more adventurous things. The two systems can be used interchangeably and even simultaneously. Even more exciting – both systems are iterative. In case you don't understand what this means, let us give you an example: suppose you wished to move a block of text using the menus. You would choose Block Move (yes, it is right in the first menu) and the screen would then tell you to move your cursor to the start of the block. On most word processors you would have to navigate manually to this position: indeed, on many of them (Quill included) only a subset of the normal navigation commands would be available. On Perfection, not only can you use all the manual navigation commands (viz all 28 permutations of CTRL, ALT, SHIFT and the arrow keys) but in addition you can use direct commands like GoTo Line or Page or any of eight markers. Even more amazingly, you can use Search (either as a direct command or from the menu) even though you are already 'within' a menu option.

Perfection has about 200 commands, but the layout of menus and the choice of keys for the direct commands makes it very easy to master. Though a 100+ page manual is provided (with all the important bits right at the front), you should only need to consult it for specialised operations like macros.

Even if speed is not particularly important to you, we assure you that Perfection's lightning performance will enable you to use the word processor in sensible ways that you would not have dreamed possible before. For example, scrolling 100 pages or so is accomplished so quickly using the normal navigation commands that you do not need to bother using a menu option to do the move. Spellchecking, assuming you have Perfection Plus, is accomplished virtually instantly: to spellcheck this whole ad (all the pages) would take under 1.5 seconds... Searching (you can switch case sensitivity, as well as equivalences between tabs, soft spaces and hard spaces) is at the rate of about 100 A4 pages per second.

Moving from one word processor to another is usually very traumatic. With Perfection, this will not be the case. Not only can Perfection read in Quill .doc and .exp files directly (you do not even need to tell it they are Quill files) but it can make direct and immediate use of your existing Quill printer driver. File re-export is also possible.

Perfection is truly WYSIWYG: this means that bold appears bold on screen, italics appear as italics, underlined as underlined, and so on. Of course, your printer may have functions we do not know about (upside down?). To deal with these, Perfection provides a number of on-screen shaded strips: these can be attached to any printer function you wish, and will not upset justification as a translate would. Of course, translates are provided as well!

A variety of statistics on the document being processed are available: some of them are on view all the time, the rest can be toggled to instantly. Not only is there a word count, but also page, line, character and special character (like Superscript Off) counts. There are also a dozen status indicators, letting you know whether you are in Insert or Overwrite mode, whether a block is defined, whether interactive spellchecking is enabled etc. Current line (from top as well as within page) and column positions and character codes are also available.

A terrific feature of Perfection is the dual screen mode. You can view one part of the document while editing another. The sizes of the two windows are themselves adjustable, both in real-time or via the configurator. We should devote more space to the configurator: however, it must suffice to say that everything that could be dynamically set within Perfection may also be preset with the configurator. The configurator can, for example, allow you to select any of 256 colours for any of a dozen parameters (like paper colour, border colour, status window ink and paper colour etc).

Perfection is fully multitasking without need for any external accessory: however, if you already use QPAC or Taskmaster or similar and are happy, you may go on doing so.

There is absolutely no way that we can prepare you for the quality 'feel' of Perfection. We have a great deal of experience using PC word processors costing many hundreds of pounds: with absolutely no exception, Perfection is far easier to use and master.

So if you thought Perfection was unattainable, you have a very pleasant surprise coming to you!

LIGHTNING SPECIAL EDITION LIGHTNING

These programs accelerate QL operation by up to 10x (2x-4x is typical) without having any adverse effect whatsoever on compatibility or anything else. Lightning SE is typically 40% faster than the standard version. This acceleration is totally independent of, and in addition to, any speed-up obtained by hardware means. So if you have Gold Card, your need for Lightning SE is just the same as if you had only an unexpanded QL – Lightning SE will accelerate both by the same ratio.

The Lightning programs achieve their acceleration by automatically paging out sections of the QL's operating system and replacing these with optimal, concise code written by us.

Lightning installation is a completely automatic and one-off: no knowledge of computing or programming is required. Once installed, Lightning can be completely forgotten about – you will soon get used to the superb speed! Knob twiddlers are catered for too.

Lightning technology is not built in to any of our other programs. Perfection users (as well as users of all other QL software) should therefore use Lightning all the time.

In summary: if you do not have Lightning, you are wrong. Buy this one FIRST of ALL!

PROFESSIONAL PUBLISHER

The Professional in Professional Publisher refers to the quality of output from that program, and is not meant to suggest any complexity of operation. Few programs are as easy to use as this one: > 99% of users will be able to do with-

a manual! Professional Publisher is by far the best DTP program for the QL. It is fully compatible with Perfection, Editor, Quill, Eye-Q & the ASCII editors. It allows you to both create and import both text and graphics. Text can be 'poured' into boxes of any shape, size and number, automatically maintaining justification and hyphenation settings. So flowing text around graphics is a doddle.

Professional Publisher is supplied with a generous selection of fonts of various sizes, as well as clip art.

Justification is by pixel, not by character. This gives a much smoother effect. It is pointless for us to try to list all of Professional Publisher's features – we would end up filling half the magazine! We will concentrate on just a few 'points': Professional Publisher is extremely precise, performing all its computations accurate to a small fraction of a millimetre. All its features can be preset by you using its configurator, ruling out the need for repetitive key strokes. The program is extraordinarily versatile while remaining intuitive in its user interface. Buy it!

PROFESSIONAL PUBLISHER TOOLBOXES

Toolbox I is an excellent collection of high definition fonts, clip art and utility programs for Professional Publisher. While the fonts supplied with Professional Publisher are excellent, many users will feel the need for a wider range of typefaces and styles.

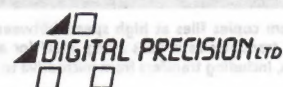
Toolbox II starts where Toolbox I leaves off, providing an even better – and different – font collection.

The two Toolboxes complement each other and are available together at a special price.

FONT ENLARGER GRAFIX

Font Enlarger does exactly what you would expect it to from its name. While Professional Publisher is also capable of enlarging fonts, it does them 'on the fly' and consequently is not able to remove the jaggedness caused by magnification. Font Enlarger is much cleverer, and enhances detail without any step effect.

While the built-in printer driver for Professional Publisher is excellent with 9-pin printers, it is not optimal with 24-pin or laser printers. Grafix is.



EYE-Q ULTRAPRINT

Eye-Q is the finest graphics program for the QL. While there may be other graphics programs with a few more features, no other program comes anywhere close to Eye-Q in sheer enjoyability. Eye-Q develops a pleasurable tactile relationship with you, and makes you feel like an artist (even if you aren't). Eye-Q graphics can be read in by Professional Publisher, and the latter's pages can be exported to Eye-Q (using Toolbox I). Everything in Eye-Q is menu-driven and there is context-sensitive help.

While Eye-Q has its own printer driver, Ultraprint allows you 22 distinct styles/sizes of printer output. The reasoning is that the scale of gradation suitable for pictures is probably unsuitable for text or line drawings.

PC CONQUEROR SOLUTION

PC Conqueror makes your QL into a PC-compatible machine, automatically. It does this by software means only, so there are no screws to undo or wires to fiddle with. Your QL stays a QL too.

Why, might you ask, should you wish to make your QL into a PC-compatible? The reason is simple: you may wish to run the same programs at home as you do at work. Alternatively, you may wish to tap into the vast storehouse of PC software of every type and description you could imagine.

Using PC Conqueror could not be easier. Just boot up your machine with the PC Conqueror disk in floppy 1 and within 10 seconds your QL will be transformed into a PC that is just waiting to be switched on. From this point on you will do exactly the same as you would if you were running a 'real' PC – this means putting a DOS disk (any version) into one of your drives and pressing a key. If you do not already have legal access to a copy of DOS, we can provide you with one at reasonable cost (see our price list).

PC Conqueror runs as fast as it is possible for a PC emulator to run: we have used all our skills to make it work quickly. Of course, you can make the emulation must faster by using Gold Card and Lightning SE. With this combination, you should get speed noticeably better than that of a PC XT...

PC Conqueror allows you to fine-tune the operating environment of the PC in order to improve performance. If you get a hard disk or other high capacity floppy system, you can utilise part or all of it as a PC hard disk.

PC Conqueror occupies under 80K and leaves 667K free for DOS when run on a Trump Card. This is more than you will get on a 'real' PC.

Solution does what Conqueror does but is about half as fast and is not quite as compatible.

SPELLCHECKER MEGA DICTIONARY

Spellchecker is what makes Perfection into Perfection Plus. We have made it available as a separate item for two reasons: (a) to allow Perfection owners to add it later (b) to allow users of other word processors to benefit from the very best in spellchecking technology.

Spellchecker is supplied complete with three dictionaries of differing sizes as well as a system for building, reviewing and maintaining user dictionaries.

Spellchecker's ultimate accessory is the Mega Dictionary, which gives the user a vocabulary of over 350,000 words!

3D PRECISION CAD SYSTEM

This program allows you to manipulate shapes and figures in 2D and 3D at a speed that will leave you breathless. Irrespective of whether your interest is in CAD, in animation or in just having fun, this program should not be missed. You can output to plotters directly from it, or alternatively create graphics screens to be manipulated and output by Eye-Q, Ultraprint or Professional Publisher.

SUPER SPRITE GENERATOR

SSG moves things about the screen very fast and very smoothly, without flicker. Sprites can have up to 16 frames.

MEDIA MANAGER SPECIAL EDITION MEDIA MANAGER

Media Manager Special Edition (MMSE) is a program to be used both when things have gone wrong as well as when things are perfectly OK. It allows for automatic, semi-automatic and manual correction of a huge variety of disk and tape problems. It allows you to explore disks and tapes to your heart's content, producing all sorts of different diagnostic reports. MMSE is very simple to operate, being menu-driven and assuming no degree of computer knowledge whatsoever.

MMSE also allows you to tidy, catalogue, sort and order your disks and cartridges.

The standard Media Manager is both less powerful and less user-friendly, but manages to work on an unexpanded QL.

Both programs allow for data transfer between PC and QL. With MMSE, this transfer is at file and directory level, is bi-directional and is completely automatic.

SPECIAL DESKTOP PUBLISHER DESKTOP PUBLISHER

These programs are quite primitive compared to Professional Publisher. However, if you have not experienced that program as yet, you will find both of these very competent. Both are capable of producing excellent results. The cheaper one has fewer features but is able to run on smaller systems.

EDITOR SPECIAL EDITION THE EDITOR

With the sole exception of Perfection, this is the best word handling system on the QL. Editor's features include an unrivalled degree of programmability and the ability to cope with the entire 256 character ASCII set. The Special Edition has enhanced document-type facilities, including column blocks and on-screen page break displays. Neither program is suitable for computing novices. Until Perfection, Editor Special Edition would have been our 'Desert Island Program'.

Editor SE can do a few things that Perfection can't, so the ideal combination is to have both (they are compatible at file level and can multitask). If you order Editor SE at the same time as Perfection, you can have Editor SE at half price.

PROFESSIONAL ASTROLOGER PROFESSIONAL ASTRONOMER

The Astrologer program teaches you Astrology from scratch and enables you to automatically produce text narrative on personality delineation, year-to-year and minute-to-minute life predictions, compatibility interpretations and so on. Whether or not you believe in astrology – indeed, especially if you do not – this program is one that you cannot afford to have. You can tailor the readouts (both in terms of quantity and what is said) to your own particular requirements. The amount of fun you can have with this program is endless. Do not blame us if you start believing in astrology, though!

Astronomer is an extremely fast and accurate solar system calculator, with planetarium views, planet faces, eclipses, cinerama display etc.

TURBO BASIC COMPILER

Turbo is the finest BASIC compiler for the QL and arguably the finest BASIC compiler for any computer!

Turbo automatically converts working BASIC programs into optimised machine code, usually with no need for human intervention. The benefits of this conversion are vastly enhanced running speed (as well as much faster loading, encryption and automatic bug fixing for a variety of QL interpreter oddities). Typical speed-up is 40x – 100x.

Turbo is provided with a 200 command toolkit, adding many useful commands to BASIC. Most of these commands will be of immediate use to the programmer, whether he is a novice or an expert. There are commands to load strings and floats into RAM, and to extract them automatically; to search memory and to move its contents; to control jobs and change their priorities, manage pipes, allocate and deallocate memory, to control both rubber and virtual arrays, to present INPUT with an editable default, to have random access to files and much more.

TOOLKIT III

Toolkit III starts where Toolkit II stopped, adding about 60 new commands and enhancing many existing dual functions. Toolkit III is available either on disk or on ROM, and works whether or not you have Toolkit II.

Toolkit III commands can, with only a couple of exceptions, be compiled using Turbo.

QFLICK CARD INDEX

All QL owners have a copy of Archive, supplied free with the QL. While Archive is competent, it is very hard to get to grips with and is not particularly fast. QFlick presents a very convenient alternative – a snappy, simple-to-use, pointer-controlled card file database. You can move data between QFlick and Archive in either direction.

QFlick is not itself programmable but we document its data structure and give guidance on how to program it using Turbo.

ARCHDEV + RTM DATABASE ANALYSER ARCHIVE TUTORIAL NAMES + ADDRESSES MAILMERGE DAT-APPOINT SEDT SCREENPRINT RECOVER

This suite of utilities will greatly enhance your use of the Archive database system.

Archdev + RTM is a straight replacement for Archive: It gives enhanced speed, greater workspace and a much cleaner boot-up. All your existing applications will work.

Database Analyser provides very fast and comprehensive statistics about your Archive databases.

Archive Tutorial proceeds systematically through the whole philosophy and grammar of Archive, providing you with expert and patient guidance.

Names + addresses, Mailmerge and Dat-Appoint are ready-to-run, off-the-shelf Archive applications, providing an address database, mailmerging and appointment diary respectively. You now have no excuse not to use Archive.

SEdit allows you to create and edit screen format files in Archive. Screenprint allows you to print them out.

Recover allows you to get back lost Archive databases, created when you switched off the computer without properly exiting from Archive.

XREF SUPERBASIC MONITOR BETTERBASIC EXPERT SYSTEM

XRef analyses the structure of a BASIC program, providing detailed reports on things like variable usage, what calls what, dynamic call hierarchy of procedures and functions, and so on.

SuperBasic monitor actually monitors and reports on the performance of BASIC programs as they run under the interpreter.

BetterBasic analyses and automatically corrects structural flaws in your programs and allows you to customise things like indentation, number of statements per line, filtering out of noise words, etc.

The three programs together provide a matchless diagnostic and auto-correcting facility for BASIC programs.

TRANSFER UTILITY

This program copies files at high speed between devices, performing translates as it goes along. Ideal for all sorts of applications, including transfers from microdrive to disk.

QMATHS SYSTEM

This is an incredible mathematical compendium for the QL. Pride of place goes to the symbolic problem solver: this can solve equations, simplify expressions, factorise, expand, etc, all symbolically. If you could sneak this one into a maths examination, you would have a formidable ally. QMaths knows about all the algebraic operators, powers, roots, brackets, trigonometry, matrices, determinants, vectors, factorials, permutations, combinations, binomials, exponentials, logarithms, hyperbolics, inverse functions, infinite series including Taylor & Maclaurin expansions, complex numbers, conversions, Fourier series, and lots of calculus: both differential and integral, including integration by parts and definite integrals. QMaths optionally displays its workings and comes with a superb interactive tutorial.

The package also contains an interpretive, fractal, image-generating language with loads of beautiful fractal programs supplied for you to use and edit – no programming skill is required.

There is also a multiple precision floating point maths package, giving calculations at precisions up to over 600 decimal digits of accuracy.

There is even more to this system, but we think we have told you enough.

QMON MACHINE CODE MONITOR

The latest version of Tony Tebby's superb monitor: an absolute must for those who really want to know what is going on in the QL. No other machine code monitor even comes close.

Do not confuse this program with SuperBasic monitor, which monitors SuperBasic, not machine code.

COMPARE

This program compares files – data or program – at colossal speed. Where a mismatch is detected, the relevant areas are highlighted and you can shuffle, displace and align very easily.

CASH TRADER WITH ANALYSER PAYROLL

Cash trader with Analyser is an accounts system designed by businessmen and not by wretched accountants! Consequently, it has excellent reporting and management facilities, and is very flexible. It is aimed primarily at the layman, probably a sole trader running a small or medium sized business. All the features you would expect – including audit trail – are present.

Payroll is a reasonably flexible system designed to automate the payroll function in small businesses.

Both programs are configurable, with editable defaults letting you adapt the programs from year to year.

HARDBACK WITH FINDER

This is the ultimate hard disk backup and management utility, with all the sophisticated features you could want. User dialogue is via overlapping pop-up windows – the whole program just feels right. It is possible to scan the disk at great speed, too.

DISKTOOL WITH QUICKDISK

This permits you to add password protection to disks, to optionally increase disk storage capacity on DSDD drives by 36K and to increase speed of access by as much as 30%. All this is done while maintaining full compatibility. Automatic file management is also provided.

DIGITAL C SPECIAL EDITION DIGITAL C

These are extremely fast and efficient C compilers, complying with and surpassing the Small C definition. The Special Edition goes much further, including support for structures, pointers, long pointers, >64K code size, direct access to QDOS traps, etc. The Special Edition C generates code that runs about twice as fast as the other.

SPECIAL DEALS

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CPORT IMPROVED VERSION

A brand new CPORT system, enabling you to rapidly convert your SuperBASIC programs into C (ANSI or Lattice). The new (October 1992) version is now as close to being fully automatic as makes no difference – you must get it!

Owners of our earlier CPORT versions should return disk + SAE for a free upgrade.

SUPERFORTH COMPILER WITH REVERSI

Forth is the most logical computer language. This compiler produces multitasking code. The manual teaches you Forth-83 from scratch.

IDIS SPECIAL EDITION IDIS

These intelligent disassemblers make the otherwise terrifyingly complex task of understanding other people's machine code programs absurdly easy. The SE version, which has a higher hardware requirement, sorts out some routines, replaces addresses with names, untangles data from code and much more.

QKICK FRONT END SYSTEM

This is a simple, easy-to-master, pull-down menu controlled multitasking front end. QKICK runs in the background and can be called up at any time. It provides you with notepads, sophisticated file/sector/RAM handling, backing up facilities, a clock, diary, calculator, mini-database and so on.

ADVENTURE CREATION TOOL SPECIAL EDITION

ACT is a must for every programmer. The name of the program is misleading, insofar as it has capabilities far beyond the 'mere' creation of adventures. ACT has utilities providing animated graphics, data compression, language design, parsing, maps, object-oriented control etc. If all you want to do is generate adventures, though, you do not need to be a programmer to use it. This is a purchase you will never regret.

PEDIT

A fast, modern and capable printer driver for the programs bundled with the QL.

MICROBRIDGE

Superb contract bridge bidder (ACOL etc) and player, using millions of random but reconstructable hands. Microbridge also includes a state of the art interactive bidding tutor and a clear instruction manual. There is nothing like this anywhere else!

SUPER ASTROLOGER

A very cut-down version of Professional Astrologer – still great fun, though!

SUCCESS CP/M EMULATOR

Allows your QL to run CP/M programs at great speed.

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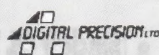
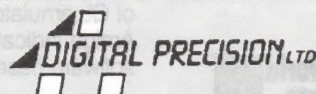
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Trouble

Bryan Davies wonders who the main QXL users will be.

It is surprising the kind of people that have computers at home, compared to a very few years ago. Do you get the feeling that the conversation turns to computers, no matter who you are talking to? Most of the people I come into contact with in my work with computers are women. Quite often, their husbands or boyfriends don't know how to use a computer. It is the womenfolk who have to grapple with the weird world of The Programmer, that strange land inhabited by printers that do not print what is wanted, and where there are no understandable instructions or books. I don't think that there will ever be - in my computer world - another wordprocessor as easy to come to terms with as *Quill*.

There used to be a gentleman in the QL world who ran a company supplying hardware and software, who was kind enough to sell me an Amstrad PCW8512 system, for the reasonable price of £250. He did not however supply me with an invoice, the manual, or the disks to make it run, and he vanished very soon afterwards, leaving me to learn how to use the PCW the hard way. It took the usual telephone calls to helpful friends to get the necessary software, and get started on learning Alan Sugar's way of doing things. One should not knock a product that has sold in the millions, but I found the PCW and its wordprocessor, *LocoScript*, a real pain to understand. Just about everything I tried to do was thwarted, even though I was well experienced with the QL and Quill by then. The LocoScript menu system struck me as ridiculously complex and obstructive, but it must be said that it provided quite a few facilities Quill could not manage. Eventually, I got fed up and sold the system for the price I paid for it.

The memories (nightmares, really) of those days came back

recently, when several of the beasts turned up on my doorstep for repair or setting-up. No prizes for guessing how long it took me to find out, all over again, how to convince the computer that the piece of paper in the printer was actually paper, and in the printer. It was no more than half an hour or so, which is probably a good time for this project. By the time three of these wonder-machines had passed before my eyes, nothing Quill can do would have worried me. There was more to come, though. One printer kept changing the left margin part-way through printing pages, and I could find nothing wrong with it after a thorough examination. So, out with the contact spray and clean all the connectors, as I have done for years with dozens of other computers. Result? One completely dead computer, and a bill for nearly £100 for having it brought to life again.

You can get a new, boxed QL for about the same price as an exchange-replacement "logic" PCB for the Amstrad. A refurbished 3-inch disk drive is said to cost £100-plus (and it is belt-driven!). A single 3.5-inch drive costs upwards of £110 plus VAT, plus the cost of having it installed. The instructions for adding these drives are complex and left me uncertain after two thorough readings. Two printers which looked identical turned out to be incompatible, one having a 7-pin connector, the other a 10-pin; the system manual said the connector should have 14 pins! Installing a printer-driver for a normal dot-matrix printer involved four books and four disks, plus several hours; actually getting the program and computer to use the printer sensibly took a mere hour or two. Be thankful for what you have got...

Miracles

A computer is only as good as its software. The development of QL emulators for the Atari and Amiga indicates that the QL software base is a sound one.

Gerard Phelan makes the point in a (February) letter that Miracle Systems believe their QXL (QL-in-a-PC) card is more likely to sell well than their QL graphics card. The argument is that the sales of the graphics board could, at best, be at the same level as sales of the Gold Card (or Trump Card), whereas there is a relatively unlimited market for something that fits into a standard PC and runs standard QL programs. There is obvious logic in this argument, but it only partly convinces me. Who will buy the QL card for the PC? Initially at least, the obvious buyers are only QL owners who also have a PC. There must be a few hundred of them, although not as many as own either the Gold Card or Trump Card, surely? Judging by my correspondence, some QL users have access to a PC at their place of work, but few of them actually own one. The big market, in volume size, is PC owners, and persuading them to buy not only a distinctly-unusual add-on but also the software to make it useful could be quite a job. Or are QL owners expected to buy PCs? The chance of having any impact on the bulk of the estimated 100,000,000 PC users worldwide is remote, unless a very expensive advertising campaign is mounted, together with much courting of magazine journalists (something Miracle cannot be accused of doing!).

The QXL card is aimed at providing fast QL performance in standard PCs. Maximum on-board ram is said to be 8 MB. The Atari QL emulator has been a (limited) success, presumably in part because QL owners have liked the idea of buying another, faster 680xx-series machine, but also because the operating system in the Atari, and the software for it, did not find approval among QL owners compared to Qdos and QL software. The SMS operating system used in the QL emulator has some significant advantages over the basic Qdos. The situation with the PC is quite different; MS-DOS has its

weaknesses, but it is now a well-developed OS with a wealth of proven software to go with it.

The *Solution* and *Conqueror* PC emulators for the QL have sold moderately well, because of the significant percentage of QL users who are also familiar with the PC, usually from their daytime work. One can be sure that the expenditure on PC software for use with these emulators has not been as high as it would for a fully professional PC system. Current PC owners who think of buying the QL card will have to consider the cost of buying new QL software too. If the card succeeds, it could boost the QL software market, maybe even bringing back to it some of the better programmers, and it could help Quanta and QL World, too.

New resolution

Miracle is working on a variety of new hardware projects, and odd bits of news on them filter through occasionally. It always seems strange to me that Miracle generally do not supply information of their own accord, apparently preferring it to arrive second-hand, but it does make a change from the usual commercial approach of bombarding everybody with reams of paperwork. The main effort seems to be reserved for the QXL card, and the improved-graphics card for the QL gets lower development priority. This seems a pity, because one thing many (possibly most) QL users would really like to pay money for is better graphics. Whether or not existing displays are capable of doing anything with improved resolution from the QL is another matter; it is quite possible that a new graphics board will mean a new display for some or all users, and higher-resolution displays are not cheap, although prices are improving, especially on the second-hand market.

The long-awaited "new improved QL" has similar implications. There would be little point bringing out a QL

shooter

Mark II unless it provided better graphics and a built-in interface for hard disk drives. It is unlikely that any new development of the QL would require a standard QL board at all, but would simply replace it. Remember the Thor? That started out using the QL motherboard, but there were supply problems with that and, above all, it created technical restrictions which prevented the Thor becoming much more than a prettier QL with hard disk. The later Thors did not use the QL board, but had an operating system that supported (with varying degrees of effectiveness) existing QL programs.

Alternative

While Miracle Systems must be the main supplier of add-on hardware for the QL, there are several smaller suppliers filling some of the gaps left by Miracle, or offering competitive products in some cases. The names Merz, Falkenburg and SPEM should be known by most QL enthusiasts; it was a surprise to me to hear that Andreas Budde was present at the recent, successful meeting in Eindhoven, discussing new business ideas. Hopefully, he will have benefited from previous experiences (remember the ABC mouse and memory products?)

Help! Any ideas why the presence of a Miracle 40 MB hard disk drive should stop a JS QL with Gold Card from booting up? To be more precise, it does boot from floppy (although not always), but not from hard disk (except on rare occasions). The boot files are essentially the same, and the hard disk appears to run alright after a floppy boot. The hard disk rom is version 2.08n and the GC rom is 2.31.

Blink a few times and you find several items of your software out of date. *QSpread* and *QD4* (sold in the UK by Software87) have reached versions 1.09 and *QD5*, respectively. On the rom front, the Miracle Gold Card has got to 2.32 (at least) and Minerva to 1.93 (going on 1.98). It is

reported that the latter got as far as 1.92, or thereabouts, without sparring with *Professional Publisher*, but a recently-released version doesn't live in perfect harmony with that program. There are also reports of trouble with the Pointer Environment on Gold Card equipped QLs, when later Minerva versions are installed. The usual polite (or otherwise) discussions are going on to try to solve the problems, but it does seem rather silly to rock the QL boat at this stage in its life. Tinkering with the firmware ten years after a computer is introduced - with development already effectively ended - is a sure-fire attracting difficulties with the large body of programs which have been introduced and refined over the years. Were changes to Qdos to lead to a completely new, and much better, operating system, which would give the QL another life, there would be merit in the work, but the only likely source of a complete new operating system is, as always, Tony Tebby. His SMS replacement for Qdos is already used in the Atari QL emulator, and it has been suggested that it may be used in two of Miracle Systems' new projects.

DP style

Perfection SE is undergoing changes, and they sound beneficial. The version number is now 5. Automatic reformatting of text, retention of first-line indenting of paragraphs when Shift-Capslock is used for manual reformatting, and support for proportional spacing, are three very desirable features which are being incorporated. In true DP style, the auto-reformatting has several aspects to it; the existing reformatting commands are retained, program configuration allows the user to set auto-reformat on or off, user control over the time delay before auto-reformatting takes place is included, and reformatting will not take place until certain other events have

occurred (eg movement of the cursor off the current line, or issuing another command). In the meantime, a demo version has been introduced. This costs £19.95, which may sound expensive for a demo, but there is more to it than that, and £10 of the cost will be credited to purchasers who order the full version of the program. The demo has some of the normal functions disabled - such as saving, obviously - and is slower than the full version, but it comes complete with about 4 MB of interesting text files and a decompression/compression utility. The files include much of the Bible, the Perfection manual, the Maastricht Treaty (!), and a scrambled version of DP's customer database. The latter should give endless hours of amusement to serious hackers. For those who already own Perfection SE, the data files and the utility are available for £9.95. See QL Scene for more details.

Professional Publisher is due for upgrade treatment too, and DP asks serious users to write to them with suggestions for improvements. Please do not write asking when the revised version will be available, though; that information will be given in the regular adverts in *QL World* in due course.

Digital Precision are now supplying Conqueror SE with a version of DR-DOS 6 that includes networking software (Novell NetWare Lite 1.1). The networking version of DR-DOS can be bought on its own from DP for £69.95. This is a higher price than charged for the earlier version, but the networking software has put the price up, and the package is now much heavier than it was, increasing the shipping cost.

Coming soon

A serial mouse driver routine has been sent to me by Albin Hessler Software (Germany), presumably in response to various grumbles made in the past about the lack of a "sensible" mouse on the QL. It

will be interesting to see if this driver solves part of the problem; it clearly cannot solve it all, since that would require modifications to many existing programs to make all of them compatible with any one mouse set-up. The apparent merits of SERMouse are that one can utilise a standard (eg PC-type) mouse which has three or two buttons, and there is no need for a special interface. An adapter cable is required, since the standard (non-QL) mouse has a 9- or 25-pin D connector, and this has to be connected somehow to the PCC ("telephone") SER socket on the QL. QLs which have a 9-pin D connector for the SER port might appear to require no adapter, but it is too much to hope that the wiring of the QL SER port is compatible with that of a standard mouse, and a 9-to-9 adapter is needed. The instructions for SERMouse give two sets of connections for mice with 25-pin D connectors and two more for those with 9-pin D connectors; together with the possibility of using either SER1 or SER2, and either PCC or 9-pin D serial connectors on the QL, there are a total of sixteen sets of interconnections. Knowing which of these your mouse requires is the difficulty; you could do mouse and/or QL a mischief with a wrong connection, as 12 volts are involved. If all goes well, a report on this driver will be given some time in the next few months.

Progs, the Belgian software supplier, has introduced a vector-drawing program. This sounds like a good development for the QL, enabling the production of drawings with much higher quality than has been possible up to now. The suggested price is rather high by QL standards, but plenty of clip art is supplied, and there is the capability to import files created in one (at least) well-known PC drawing program.

Troubleshooter

VAT and the EC

Readers will not be spending much time thinking about the impact of the changes to the Value-Added Tax system, that came into effect on 1st January, 1993. Suppliers will have to give serious thought to these changes, though, and purchasers who live in different EC countries from their suppliers should by now have noticed changes in their bills. Anyone who believes he/she understands the changes and thinks them sensible might write to me and explain the effects on QL suppliers and their customers, and how the new system will benefit either. The latest VAT Return form certainly confuses me, even more than its immediate predecessor. Wording in the previous form had me entering figures in the wrong place, but wording on the same subject in the new form simply left me baffled.

There are a couple of aspects of the VAT changes which will cause suppliers in the UK to

review their charges. Digital Precision has gone to some length to acquaint me with their situation on this matter. Up to the end of last year, their policy was to add 5% to their basic UK prices when shipping to other European countries, and to add 10% for countries outside of Europe. Obviously, postage costs more to other countries; less obviously, packing can cost more (it may need to be more substantial) and documentation costs more. If a package sent to another country was not accompanied by a particular VAT declaration, and that package was subsequently returned as "undelivered", the supplier was likely to end up paying VAT on the returned goods. Since 1st January 1993, DP has used surcharges that you can find in this month's QL Scene. The Purchasers in the non-VAT-registered EC category are the ones who may feel aggrieved. Any complaints should be addressed to the EC Commission (or similar), not to DP, because the increased cost

is simply tax. A simple example was given to illustrate the situation. A purchaser in Holland, buying a program which has a UK price of £49.95, would have paid that price plus 5% - £52.45 - up to 31st December 1992.

There 5% would have been carriage only, not VAT, and DP would not have had to pay anything to Customs and Excise in the UK. (or anywhere else). The charge for the same item now is £49.95 plus 15% - £57.44, nearly £5 more. DP pays more still - out of the £57.44, they have to pay 17.5%; though their charge has increased by 10%, they get several pounds less out of the transaction. Sensibly, DP has reduced the impact on such customers by absorbing part of the new VAT. There is an additional loss, caused by extra administration, since most sales to other EC countries will now involve VAT. The new regulations do not affect charges to customers in the UK or anywhere outside EC Europe, and VAT-registered EC customers will pay less.

The average person will undoubtedly find it a little nutty that VAT is not now charged to VAT-registered customers in the EC, whereas it was charged previously and non-registered

customers are now charged VAT, whereas they were not charged before. What non-registered people often overlook is that they were always liable for VAT, but it had to be paid in their own country, and many people never paid it simply because their local Customs department did not inspect the incoming packages thoroughly to see if VAT was chargeable on them. In other words, the EC administration has now moved to collect the VAT that was not being collected before.

At present, the recent 25% drop in value of the pound against some other currencies means that buying goods in the UK is a much better deal than it was a few months ago, regardless of the VAT changes.

Trading Standards

The Trading Standards Office has been incontact with me regarding TK Computerware and has advised that anyone who still has a complaint about TK should contact the following person: Mr. M. Walkenden, Trading Standards Department, 11 Church St, Folkestone, Kent CT20 1TN.

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Please make cheques payable to **ARCWID LTD.**

ACCESS ☐ VISA ☐ account:

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QL Scene

Competition Results

It only takes the delightful vision of an armful of free software to bring out the poet in the soul of a QL user! If spirits soar to wax so lyrical on the virtues of the QL, how much more must they soar when those virtues are put to the test! And, of course, our prose writers also put their hearts firmly on their sleeves when it came to praising their QLs.

It was the SJPD Software/QL World competition that brought forth these declarations of affection. The three prizewinners will be able to choose software from Steve Johnson's public domain catalogue.

First prize goes to **Bob Adams** of Sheffield, who declares:

*"I still get a thrill, when I see my QL
Because Miracles come in such Quanta
I know there's no risk when I boot any disk
And get every output I wanta*

(Chorus)

*St Clive and Sir Tony
And Freddie as well
Gold Cards and Perfection
They all ring my bell"*

Unfortunately - or maybe fortunately - Bob didn't recommend a tune! He wins a choice of 30 disks.

Second place goes to **A J Rushton** of Broadstairs, with his statement straight from the heart:

"... It's like meeting a close friend in order to explore the unknown."

Let's face it - computing is still unknown territory in so many ways. Now AJ will have another 20 disks to explore!

Third prize goes to **Eleanor Patrick** of Leeds, taking on the opposition with:

*I still get a thrill when I see my QL, because it's
Miraculously better than MS-DOS with SHELL!*

Eleanor wins a choice of 10 disks. SJPD will be contacting prizewinners soon. The answers, of course, were:

1. The initials QL stand for Quantum Leap
2. (c) the parallel port is not found on the QL
3. Because SJPD's list is always changing, any answer which showed that you had checked out his catalogue, advertising or press releases was acceptable - but the most popular was "around 90" (QL disks). SJPD also does software for the Amiga and for the PC.

Thank you to everyone who entered.

Ergon Spectrum Package

Ergon Development in Italy call their new ZX emulator "a new kind of emulator in absolute terms: a program translator." The *ZM/hT*, which stands for "ZX emulator high technology", takes Z80 machine code and compiles it into true 68000, says Ergon. *ZM/hT* is the result of a lot of work using partly the *ZM/2* and 3 hardware emulation and supervisor, along with complete rewriting of the *ZM/hT*'s program kernel, producing 95% compatibility (similar to the *ZM/2* emulator) and speeds (around 70% to 130%) comparable to a genuine ZX Spectrum when used with a 16MHz Gold Card. The *ZM/hT* also runs on a 640KB QL with variable speed results. Some games play about 30-40% of Spectrum speed - modest but playable. There is plenty of scope for machine code programmers to fine-tune performance on the *ZM/hT*.

Executable program translators are usually associated with mainframes!

Meanwhile, *ZM/2* and *ZM/3* are on their third major release, with Plus-2, 45-page manuals, Interface 1 emulation (*ZM/2* only), True Tape emulation (sample sound from the net port). The new Diginet program allows you to read directly Spectrum tapes from the QL networking port without an interface. *ZM/hT* also has joystick emulation.

The emulators are sold as two packages. One, the *ZM/x* System, comprises *ZM/2*, *ZM/3* and the transfer programs (disk utilities, Diginet, backup programs) and costs 60,000 Italian Lire (currently about £26) plus carriage. The higher-level package comprises the full *ZM/x* system, plus the *ZM/hT* compiler, and costs 90,000 ItL (about £40) plus carriage. Carriage in both cases is 12,000 ItL. Purchasers sending non-Lire cheques should convert at the rate quoted in the daily newspapers or at their bank, first adding 10,000 ItL for currency conversion charges at Ergon's end. Better for those that have Eurocheque books is to pay the whole sum in ItL, where the extra charge for conversion is not required. It may also be possible to send a Postal Order in ItL.

(Users who buy goods from abroad more often than once in a blue moon, and/or travel to continental Europe, might ask their banks about the cost of running a Eurocheque book as a possible alternative to paying currency conversion charges.)

Meanwhile, Ergon's DEA Intelligent Disassembler, now in version 5.05, can handle trial parsing, and knows about Qdos system calls, including Things, Config and ptr_gen. Source code quality has been improved and it now does most processes automatically, reducing user intervention in many cases. DEA now costs 55,000 ItL plus carriage.

ALL FORMATS DIARY

Coming dates for the All Formats Computer Fair are:

Apr 24 London

Hammersmith Novotel (Hammersmith Tube and turn right from the main entrance)

Apr 25 Bristol Brunel Centre, Templemeads Station **May 1** Northumbria Centre,

Washington, Dist 12 **May 22** London Sandown Park, Esher, Surrey **May 29** Leicester, De

Montfort Hall, Granville Road **30**

May West Midlands National Motorcycle Museum, J6 M42

19 June London Novotel, Hammersmith **20 June** Brunel Centre, Templemeads Station, Bristol.

Check with any particular supplier whether they will be at a particular Fair. If you have far to travel phone All Formats 0608 663820 to check arrangements haven't changed. Many QL suppliers only attend the Glasgow and London fairs. In London the Hammersmith venue is preferred.

Day tickets are £4, but attendees can get up to 50 £1-off vouchers if they send an SAE to the organisers at: Maple Leaf, Stretton-on-Fosse, Moreton-in-March, Gloucestershire GL56 9QX. (Only one voucher can be used per ticket, of course.) Photocopies of these vouchers are also accepted. However, admission to the Fairs will be a flat £2 between 2pm and 4pm in future (£1-off vouchers do not apply at these times).

Show Planned

Quanta member Andrew Franic is making moves to organise a QL show on the outskirts of Bolton. The prospective venue is the Georgian House Hotel, near junction 6 of the M61 in the Liverpool/Manchester/Preston area, and he is currently inviting support and suggestions from prospective suppliers and visitors. Contact Andrew at **46 Carr Meadow, Bamber Bridge, Preston, Lancs PR5 8HS. Tel. 0772 323860.** The date mooted is Sunday 5 September 1993.

Open Channel

Open Channel is where you have the opportunity to voice your opinions in Sinclair QL World. Whether you want to ask for help with a technical problem, provide somebody with an answer, or just sound off about something which bothers you, write to: Open Channel, The Blue Barn, Tew Lane, Wootton, Woodstock, OX7 1HA.

Compression

There has been much talk over the last year of the C68 public domain compiler for the QL. I expect that only those interested in programming have acquired this package. However, others may like to know that the package contains some very good utilities that are of general use:

Arc - for compressing files and concatenating into one file (and restoring). Compatible with PC arc programs such as PKPAK pr - formats and prints files with page headings, etc.

fgrep and grep - programs for searching for strings and patterns in files

diff - file comparator

These are just the ones that I use regularly, and having on my boot disk. Each comes with documentation and source code. I believe it is worth getting the C68 disks (from various public domain libraries) just for these utilities. Further utilities will shortly be available with the introduction of a number of supplementary disks for the C68 system. However, it would be useful if, for the benefit of those not interested in programming, all the utilities with documentation but not source code were made available on a single disk.

If any non-programmers do start using these utilities, but find the documentations too terse, I would consider writing some user notes on their use.

Stephen Bedford
Bracknell
Berks

People who are interested in file compression should take particular note.

Authorised

I was a technical author (hardware) for over 30 years, so not a "Bimbo". I have always found software full of jargon, so please keep articles simple with

full instructions on how to enter, load and run listings. For example, how on earth can you make Archive print out hardcopy of data on A4 single pages?

P D Stickley
Weybridge
Surrey

Having read quite a lot of stuff produced by technical authors over the last 30 years, I might (if I were in that sort of mood) venture to suggest that maybe the software writers are just getting their own back. On the other hand, looking at some of the software handbooks (and software) produced over the last 15 years, that might be a grossly unfair suggestion.

Drag in printers and you double the pain instantly. We are asking Dr. Robin for his opinion.

Arrays

I would like to thank you for my subscription to my favourite magazine. In the first new issue, you asked for any ideas that readers might like to see implemented. It appears as if you want to entice regular readers by asking what bait they respond best to. If so, my request may not be what you are looking for. However, I sincerely hope you will give it consideration.

Obviously you are still running *Open Channel* and *Troubleshooter* (and how grateful I am for that one!). I can take you back to early editions when there was also a technical helpline section. My suggestion falls more in that category.

I am sure there must be lots of QL users out there who, like myself, are trying to write programs for our own uses. And as we are not all competent programmers, we meet with stumbling blocks. How about asking readers to give a brief description of what they are trying to achieve? Hopefully then, your more learned staff could print the solution.

To start the ball rolling, here is a major problem I am having at the moment. I have tried every

way that I can think of, to try to make my QL perform a task that I know it is quite capable of. I have a list of data names that are read as a\$. The inputname is b\$. If b\$ instr a\$; print a\$. So far, so good.

I want a three-dimensional array to store the information. Two arrays, in fact, depending on which criteria are needed. These are represented by c\$(k) and d\$(k) respectively. Again, so far so good.

My problem concerns accidental duplicating of these two arrays. Lines such as:

```
for z=1 to k:if a$ instr c$(z)
```

```
or
```

```
a$ instr d$(z):print
```

already exist. These seem to work for about four inputs. They then seem to give an error every time. Print b\$ is correct, but print a\$ gives a completely false answer. Also, it does not always recognise duplicate strings as existing, for some reason. My next paragraph contains a small chart, which might make the problem clearer:

```
c$  
Fred Smith(1)  
Mike Hall(2)  
Bill White(3)
```

```
d$  
John Williams(1)  
Mark Jones(2)  
Ken Cobb(3)
```

Now, if at any stage I should try to input a name that I have already input, an error message should warn me. I then want the option of correcting the first entry, or the current one, depending on which one is incorrect. And also, obviously, if John Williams(1) should have been Doug Cox(1), I do not want to end up with Doug Coxliams(1). All this should be within the scope of my computer, and especially the QL. But how do I get this function or procedure to work? Incidentally, the list is expected to grow and grow. Currently, I have around

200 names in the data statements.

If you were to devote a section of the magazine to this sort of problem, I am sure that you would encourage more people to be more adventurous with their computers. I keep a file of my useful procedures handy for future reference. Who knows, I might make even more use of my QL.

Alan Ingrey
Peterborough

Comment: It's the old Technical Helpline chestnut again. In these latter days as the technology surrounding the QL becomes more sophisticated, and the marketplace is smaller than it was in 1984 - the people who have the expertise to answer questions like this one quickly are all too busy doing other things. Like writing their own software, or designing hardware. If I had two bob for every time someone said to me: I could have fixed that! Well, sez I, we printed it, so why didn't you? Um, well, I've been very busy, comes the reply.

Well always forward replies to people's software or hardware problems, even if they're too long to print!

Miraculous

I had a small problem with my Miracle ED drive, so I wrote to Stuart Honeyball for advice. Unfortunately, to look at my drives I would have to send them and the Gold Card back to Miracle and, as I live in Ibiza, this would have been tricky. Post is impossible, taking anything from 6 days to 6 weeks, finishing up in Customs in Palma or Barcelona and needing a Customs Agent (at one's own expense) to sort it all out (sometimes the package is returned to England in the meantime).

So I asked if I could bring my hardware in the next time I visited England (as I could still use my rig). On a visit in October I asked my daughter to phone Miracle to arrange an

Editor's notebook

First, apologies to New User Guide collectors. Mike Lloyd has been overworked this month and we decided that he had better complete the review of Perfection SE that he has been working on for some time, and postpone the next installment of The Keyword Index till next month. I have a report from the International QL Meeting in Eindhoven in the centre pages instead. I wait with baited breath to see if the photos have come out - by the time you read this we will all know the horrible truth. Many thanks to Cor Biemans for helping me get a transparency film in Eindhoven. No-one outside photographic shops and major chemists in the UK seems to sell anything but Kodak Gold film for prints!

Secondly, apologies to the machine code people - no Alan this month, and Simon is deep in his Spectrum emulators. There's a note about last month's Blob in QL Scene - write if you need a new listing.

(Put in something about Dilwyn's Very Basic SuperBasic, which should be starting this month.)

appointment. They gave me detailed directions, and I was made very welcome and given to Mike Tomlinson, an experienced technician who put the ED drive and Gold Card through tests. A small change was made in my Gold Card (which may not have been necessary, but Mr. Tomlinson did not want to leave anything to chance) and the ED drive needed to be dismantled, so a new one was produced and checked with the Gold Card, and all was perfect. Within an hour of arriving at York station I was back at the station, Service, without any doubt, of the finest that anyone could look for.

Anthony P Magnus
Ibiza
Spain

Divine

Much has been said in QL World about the excellence of the Gold Card, but very little about the first class sale handling by Miracle.

After my past disastrous experiences of buying a satellite receiver and some QL peripherals in England, dealing with Miracle proved a most

welcome change. My letter enquiring if Miracle could arrange a sale under personal export scheme was replied to by return post. They warned me that they would try their best during my short visit but could not guarantee it as it depended on receiving components from other people. They were able to despatch just before my departure - to do so, the parcel had to be sent by overnight service, but there was no extra charge. The Gold Card and dual disk drive were immaculately packed and the Personal Export Scheme forms already filled out with all my particulars. I am sure even the Japanese could learn from Miracle's packing delicate electronic equipment.

Miracle phoned me to check that the parcel had arrived on time. Three days after returning to Austria, I received a note stating that the VAT refund had already been paid to my bank. I was surprised there were no charges for the VAT refund as is the case with most department stores. If only other firms would conduct business in the same way, I am sure England's trade deficit would look completely different.

Those who shop in England

under the Personal Export Scheme must already have learned what a common malady are the delays in refunding VAT. Apart from Miracle I found one other good exception - AVH Electronics in Tottenham Court Road in London where I bought my Star LC24 printer on a previous visit. The VAT was refunded to my bank a day after I posted the PES form from London Airport. It certainly calls for a new entry in the Guinness Book of Records.

J Bartelski
Zell-Am-See
Austria

Deskjet Driver

I must admit to feeling a little depressed. Having saved my pennies by only buying the children one Christmas present (I can't remember which one of them actually got it) and an out of date box of chocolates for my wife, I find that Miracle Systems' graphics card is still as far away now as it was before Christmas. However, the depression lifted somewhat when my Extra Density Drives arrived from Miracle Systems - what an excellent service they give, and you can speak to them on the phone.

Now for the begging bit. Having spent an extra £100 to get a Deskjet 500 colour printer, rather than the mono one, I have yet to find a printer driver that will print graphics in colour. If anyone knows of one, please let me know.

After eight months with *Qpac2* I'm still struggling, so it is encouraging to see the Pointer Environment articles. Thanks for QL World, I thoroughly enjoy reading it.

Ray Walters
Alton
Hants

Oh, come now. The graphics card must have got a little bit closer since Christmas (unless you subscribe to the theory that all developments, like the galaxies in the universe, are moving away from each other at a constant rate). They are working on the QLX card at the moment. I keep warning people that it takes time ... often a lot of time ... to learn a new large package. I have never hefted a brick through a monitor screen, and I hope I never shall, but the thought did cross my mind this afternoon. And that was just a wordprocessor (not a QL one, by the way).

A rescue

I read John Roberts' letter about corrupted files. I have managed to make Simon's Goodwin's *Revive* programs (QLW January and February 1993) work for me, with some difficulty as I do not use the DIY commands.

My previous way out when something went wrong and gave me the message "No Medium" in the disk reader was as follows: I did "WCOPY" from the "non-existent" disk to a newly-formatted disk, and was able to recover all files except the one which had got corrupted.

There do not seem to be any recovery programs which handle other than DD disks that *Revive*. I have PC disks which are HD, and Diskover and other PC-format transfer programs cannot transfer files to QL-format disks. No doubt some clever guy will get around to tackling that. Good luck.

Ian Plizer
Switzerland

Overheating

I am writing to ask you to pass on an excellent tip for all users of the QL, which I got from Qubbesoft PD.

I was having problems with my original QL, which is fitted with a Keyboard Products keyboard, and I took advantage of QL World's offer to purchase a new QL.

To my horror, I found that this one suffered from overheating and would crash after about 20 minutes of use. I tried fitting an uprated regulator ship which did help, but the system would still crash after some time. I was contemplating upgrading my system to a full Trump Card and contacted Qubbesoft to get a quote, as I suspected that it was the Expanderam which was causing the fault, and during our discussion Ron Dunnett explained that if I opened up the power supply and tweaked the variable resistor inside this up to 11 volts, this would probably overcome the problem. Having carried out this operation, I inadvertently left the computer powered up for four days and was immediately able to use the system which is now rock-solid, and although still connected to a relatively dirty mains supply, has not in the past two months suffered another crash.

Open Channel Cont . . .

I have two QLs, one a JS rom version with a 512K Expanderam and disk interface from Miracle Systems with twin Citizen one-third height disk drives and a Citizen 120D printer. My display is a Philips BM7502 Green Screen 80-column monitor. The other system is a JM rom version with microdrives only (although I hope to get it to network and share the disk interface when I get time, using Flexynet)

Keep up the good work and please pass on this tip as I am sure that any new users will not find it out very easily.

Robin Dow
Hillpark
Glasgow

I have spoken to Ron Dunnet, and he confirms that this adjustment should help in cases where the computer is not getting a full 9V from the power supply. Some units seem to have left the factory getting only 8 or 8.5 volts on the 65-way connector. However, any internal adjustments to your computer system must be done with the greatest care - and at your own risk. If in any doubt, send it to an experienced repairer. If you are opening your computer, and doubly so for the power supply, make sure it is unplugged first. The overheating Robin mentions was probably fixed by replacing the regulator. If the constant crashing was due to inadequate power as described, then turning the power supply voltage pot up to 11 volts is a solution used by repairers. 11 volts seems to be the practical (maximum) adjustment to

provide the right power to the connector. If, however, another part of the system is overheating, or the pot is turned up further than this, any overheating problems would get worse.

A cure

Using the Miracle Systems disk adaptor, I also had a period of losing directories when four drives were connected. This was eventually cured with a hot reset. After switch-on, when the ram test is concluded, press the reset button again. This cured all my "no directories found" problems. But you should never try and do without a backup copy, irrespective of disk size, hard or floppy, or type of computer.

As for fitting the Adaptor straight into the Gold Card: I would use a 34-way extension ribbon connector, with a 34-way plug on one end and 34-way socket on another. Such a connector was made for one of the Amstrad computers. It will keep the Adaptor out of harm's way.

I don't like the layout, particularly when SuperBasic listings are incorporated into the letters. Double columns would be much better.

P Hutley
Dewsbury
West Yorks

Transfers

I have for many years been an enthusiastic supporter of the QL, and hopefully this will continue. Doubtless like many other QL enthusiasts, I have spent a small fortune on various items of

additional hardware and software over the years.

As the QL has allowed itself to be built up on individual needs, it has been an affordable exercise, buying add-ons as needed. However, when you sit down and tot it all up, it comes to quite a lot of money.

There is clearly excellent software available, although I believe there are gaps in the hardware. What I do find hard to believe is that there appears to be no software available which converts QL machine code to PC machine code (and perhaps vice versa). Not a file transfer program, but a true program converter. Surely this would give the QL a new lease of life, enabling us programmers to never surrender our wonderful machine for a lesser PC. I have been searching for such a piece of software for months, in vain. Does such a program exist? Is anyone capable of writing such a program?

I notice in the February *QL World* that Miracle Systems are soon to offer the QXL. Is this the answer? This may not be the ultimate answer, but may go some way to alleviating the problem.

Glyn Rhodes
Macclesfield
Cheshire

Spelled

In the March issue of *QL World*, L Ross expresses his wish for a QL spellchecker with "option to ignore; replace (with a suggestion from the Thesaurus or myself if I want), add to the dictionary, spellcheck existing files, and not to have to re-institute Spellbound after each cursor move".

All the options that Mr. Ross asked for are available in our *Plus4* wordprocessor and have been commended by many users. Mr. Ross has also since upgraded to *Plus4* and written to us saying, among other things: "The spellchecker is so much more the kind of thing that I have been asking for, with the common-sense pragmatic view of spellchecking that enables freedom of thought in composition."

The high-end PC wordprocessor used by Mr. Ross may still have the edge over *Plus4* in that it is better at guessing the possible alternative words when it offers a list to the user. But in order to work at a reasonable speed, that program requires a fast PC with

4MB of memory and even more space on the hard disk, not the kind of hardware available to the vast majority of QL users.

Fred Toussl
Software87
London NW3

You should see some of the suggestions some of those "high-end" spellcheckers come up with. 'Guessing' isn't the word.

Gold Quill

If anyone is wondering how to stop Quill crashing when scrolling up through a document, try a Gold Card. I do not know why, but not only is Quill amazingly fast on a Gold Card, but it seems very hard to crash it.

Rich Mellor
Walsall

Abacus cells

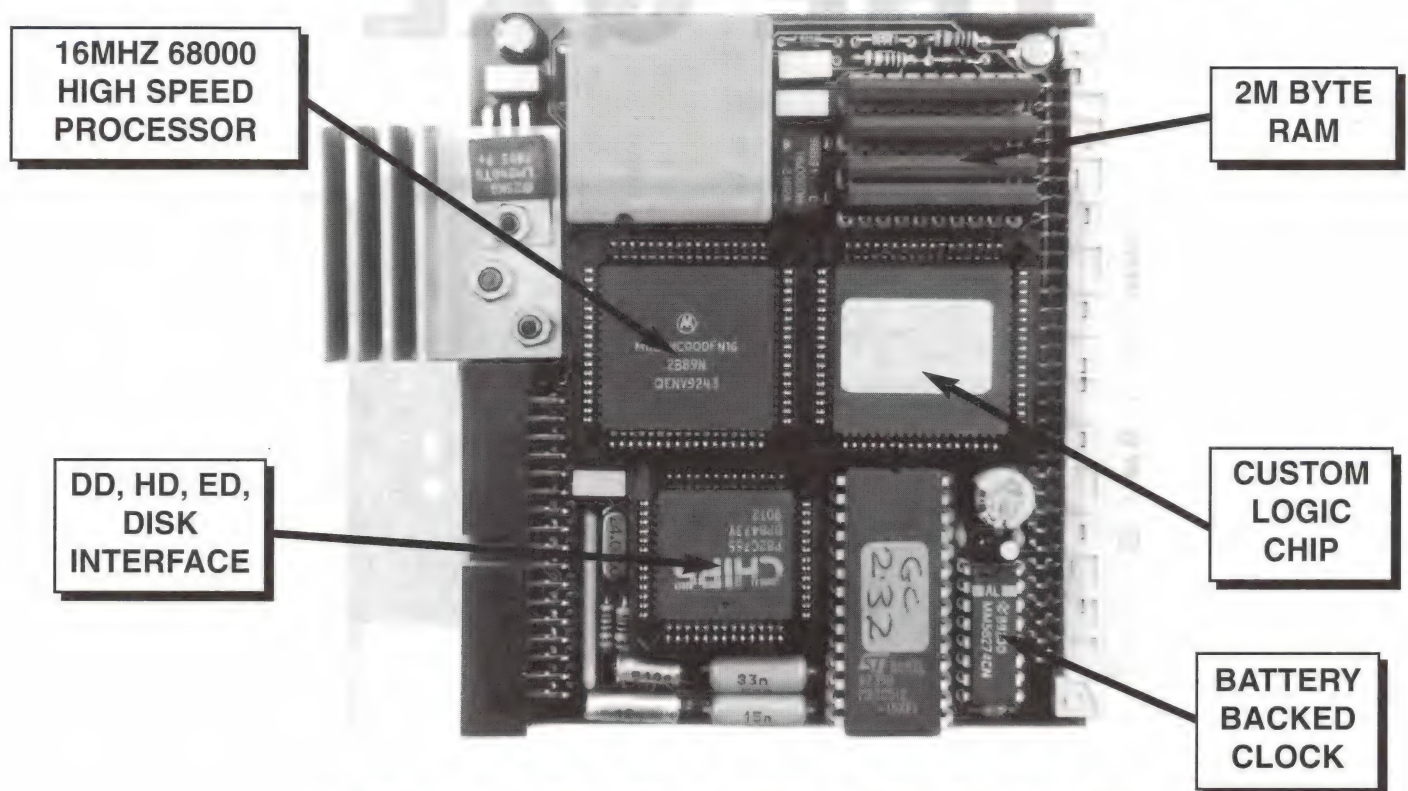
Having expanded the memory of my QL with a 768K Trump Card, I would be interested to know if there is any way in which the *Abacus* layout can be expanded beyond 255 rows and/or 64 columns. On a routine which I run twice a year, I have to divide the procedure into five parts and then, as an extra procedure, enter a summary of each of those parts to obtain a final result. If it could all be handled as one operation it would be a great improvement, but I would need either 1300 rows or 276 columns or some combination thereof.

E B Palmer
Watford
Herts.

Howard Clase replies: The only versions of Abacus I know that have more rows and columns are Psion's PC Four and the full "Xchange" suite. Even the Turbo Xchange suite originally written for the QL-compatible Thor only has the 255.64 maxima. QSpread, advertised by Jochen Merz, has 32767 cells, double Abacus's maximum; it may be the answer. I think the fact that very few patches for any of the Psion suite have appeared, either as commercial programs (Turboquill was one exception) or as shareware/public domain software indicates that it is not easy to do.

Jochen Merz's phone number in Germany appears in Instant Access for enquiries.

MIRACLE SYSTEMS



QL GOLD CARD

£225 inc. (£200 outside EC)

This is the expansion that has been revolutionising the QL. It is very easy to fit - it simply plugs into the expansion port at the left hand of the QL - and once fitted it will instantly increase the execution speed of the QL by about 4 times due to the presence of a 16MHz 68000 on board. There is 2M of fast 16 bit RAM of which QDOS sees a contiguous 1920K. The remainder is used for shadowing the QL's ROM and display memory and for the GOLD CARD's own code.

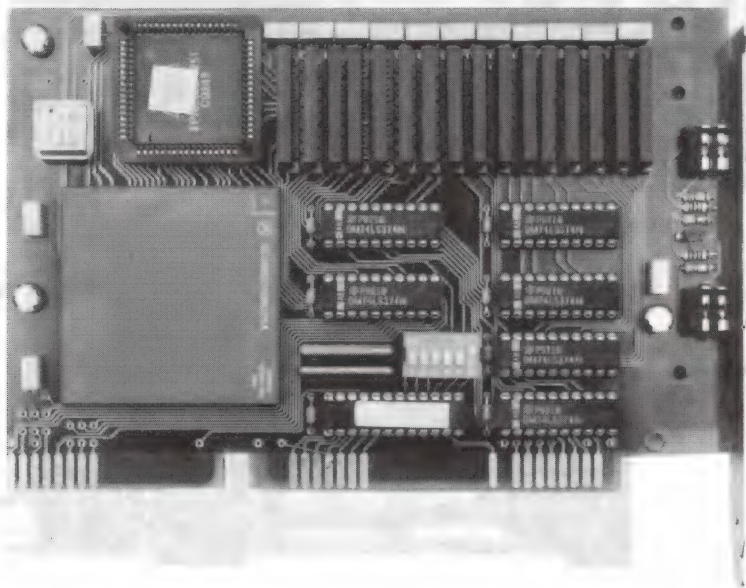
There is a disk interface which can access 3 mechanisms (4 with the DISK ADAPTER) of 3 different densities, DD (double density, 720K), HD (high density, 1.44M) and ED (extra high density, 3.2M) in any mix. The disk interface connector is the same type that was fitted to the TRUMP CARD so most QL compatible disk drives can be used. Please note that DD drives still give a capacity of 720K per diskette. Our DUAL ED DISK DRIVE allows the GOLD CARD to access DD, HD and ED diskettes.

Another feature is the battery backed clock. When the QL is switched on the contents of the clock are copied into the QL's clock so that the time and date are correct. The firmware in the ROM gives the GOLD CARD all the functionality of the TRUMP CARD like TOOLKIT II and there is a sub-directory system for floppy and RAM disks.

Physically the GOLD CARD is about half the size of the TRUMP CARD and so fits almost all within the QL. Its current consumption is well under the allowable maximum so no special power supply is required. The GOLD CARD comes with a 14 day money back guarantee and a 2 year warranty.

MIRACLE

THE QXL



The QXL turns the common PC into a QL compatible. The package comprises a half card that plugs into an 8 or 16 bit standard ISA slot and a diskette loaded with a QDOS compatible operating system and a Superbasic compatible interpreter. After installation simply type QXL and the PC will appear to be a QL allowing QL programs to be run from QL format diskettes.

The card itself has a 32 bit 68EC040 processor running at 20MHz which gives a good turn of speed. This processor has access to its own RAM and so performance is virtually independent of the host PC whether it has an 8088 or a Pentium. In fact the PC is used purely as an I/O system giving QL programs access to the PC's floppy disc, hard disc, keyboard, display, serial and parallel ports. The card itself has QL style network ports to allow connection to a QL network. The minimum PC specification required is an XT with EGA display and a spare standard slot.

Varying RAM sizes from 1M up to 8M can be supplied. The smaller capacities can be upgraded to the larger ones and the cost is simply the price difference. Not all the RAM is available to the user programs; the 1M equates roughly with a TRUMP CARD QL memory size and the 2M with a GOLD CARD QL.

During the lifetime of the QXL we intend to enhance the software to make use of the new hardware facilities of the PC such as SVGA graphics. As has been our policy with the TRUMP CARD and GOLD CARD we intend to provide software upgrades free of charge.

SYSTEMS

QXL prices

1M	£295	(£255)
2M	£325	(£280)
5M	£410	(£355)
8M	£495	(£430)

(prices in brackets for outside EC)

**See us at The Salvation Army Building,
Memorial Boulevard, Newport, RI 02840,
U.S.A. on 5th June 1993, 13:00 to 18:00**

INTERNATIONAL QL REPORT (IQLR) is a regular magazine that all QL users should read. It has articles for the beginner, the advanced user and every one else in between. Also, the international flavour combined with low advertising rates makes it probably the best place to locate QL related items. IQLR is run by QL enthusiasts whose proud boast is that they have never been late with an issue. If you do not already get it then 'phone us now. One year's subscription for 6 issues to any European address is £22.00 and it's worth every penny. Subscribers elsewhere should contact SeaCoast Services, 15 Kilburn Court, Newport, RI 02840, U.S.A. direct.



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To place an order by phone please have your credit card ready. For customers outside the EC we charge the prices shown in brackets.

To order by post, please fill in the form opposite or write to us quoting your credit card number and expiry date, or enclosing a cheque payable to **MIRACLE SYSTEMS Ltd.**

To: MIRACLE SYSTEMS Ltd, 25 Broughton Way, Osbaldwick, York, YO1 3BG, U.K. Tel: (0904) 423986

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PERFECTION

SPECIAL EDITION

Mike Lloyd read-tests, speed-tests and absolute-beginner-tests the newest Perfection.

On the underside of every QL lies the legend "Sinclair QL professional computer", a carefully-considered description to emphasise the QL's position at the boundary between the personal and the business computer markets. The software product which naturally gravitates to the same mid-point location between business and home is the word processor. The recent QL World readers' survey showed that wordprocessing is still far and away the most popular use of the QL, so it is not surprising

that the it has had a number of word processors provided for it.

What is worth noting is the quality of them all - including the much-maligned Psion Quill and the rather quirky original text-87. Each has a different underlying philosophy and a distinct personality. Psion Quill is a competent general-purpose word processor best suited to letters and small documents, but used more than once to draft manuscripts for substantial books (mine among them). Digital Precision markets the still-popular Editor, an application tuned to the more demanding file-editing requirements of programmers, but later extended to perform in many respects as a mainstream word processor. Text-87 and its more recent relation Plus4 sit on the opposite side of Quill, edging towards the desk-top publishing end of the spectrum; its strengths lie in page makeup facilities rather than conventional text manipulation.

Two or three

Many QL users will own at least two of these three programs and use whichever one best meets their immediate needs. It takes a very powerful program to muscle into this market, but Digital Precision came in with Perfection and more recently with Perfection Special Edition.

Perfection is an exciting, full-flavoured, general-purpose word processor of incredible capacity. It competes directly with Quill at the centre of mainstream wordprocessing and comprehensively outperforms the Psion product. It also takes chunks out of the terrain that The Editor and text87 used to call their home grounds. Perfection has now been outshone by the recently-released Perfection Special Edition. Before sizing Perfection SE up, it is worth asking on the question likely to be in the mind of all existing Perfection users - whether the extra facilities are

worth the upgrade price.

The first obvious difference between Perfection SE and its predecessor is the substantially faster speed at which it operates, especially when checking spelling, reformatting paragraphs, and when searching and replacing. Cursor movement is incredibly smooth and refined; cursor navigation has been altered slightly to meet the demands of some Perfection users (although, one suspects, under duress: Perfection's author preferred the original arrangement!).

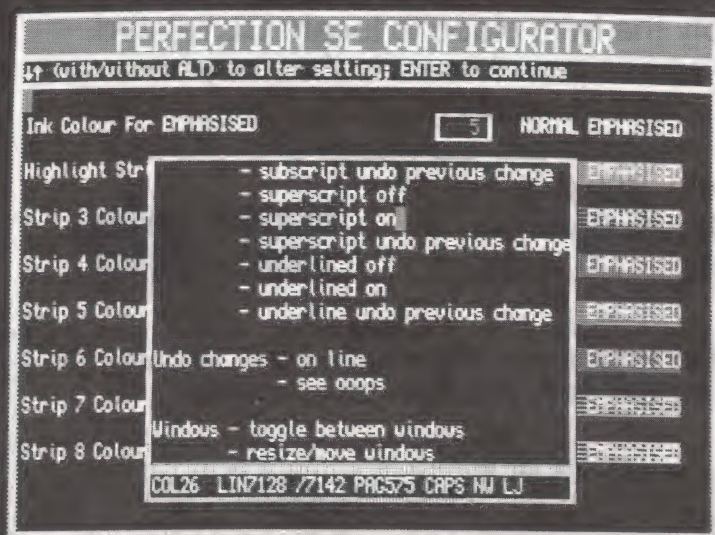
Environment

Perfection SE allows up to six "environment settings" to be defined within a document. These are the rough equivalents of entries in a desktop publisher's style sheet and can include character, paragraph and margin information to be applied to selected text. Environment settings are invaluable for instantly formatting address and signature blocks, table layouts, quotations and footnotes, and exist in many of the more modern PC wordprocessors.

The number of permitted instances of many of Perfection's other features have increased in the Special Edition. For instance, instead of four character-format strips there are now eight. Should this still prove inadequate there are 64 translates (rather than 16), each one capable of holding 64 characters instead of 15. Even the Perfection program itself can now be duplicated up to nine times in ram so that many documents can be edited simultaneously. Before you do the sums, each extra copy only occupies an additional 9KM of ram, due to the program's impressive code-sharing facilities.

The menu system is recursive, which means you can use any of the menu options when

The Perfection configurator



REM PERFECTION SE multitasking with CONFIGURATOR

working within a non-instantaneous menu option. An obvious application of this facility is to use Perfection's search options to reach the start and end of a substantial area of text during a Block Definition command.

Utilities too

The Special Edition tag extends to many of the utility programs bundled with the word processor. The configurator has been expanded to cope with the additional features and to give users more control over screen effects. The dictionary utility has been upgraded to cope with the SE's new features. (The dictionary itself remains an optional extra.) Users not content with the impressive speed provided by the default Perfection settings now have a slightly wider set of options to adjust in the search for maximum speed (usually at the loss of a little user-friendliness, but then, it's your choice).

File loading and merging has been improved over and above the ease of use already provided by standard Perfection. Quill-format files load more quickly and with fewer incompatibilities. Compared with Perfection's file format, saved Quill files (as opposed to exported ones) use a very different method of keeping track of character attributes such as bold and italic: Perfection SE is now very adept at converting the Quill format into the Perfection format. Needless to say, where Quill often gave problems when text files grew beyond around 3,000

words, Perfection is completely reliable, and maintains its impressive speed, no matter how many thousands of words you are editing.

SE's new printer definition files now contain many more parameters to give increased control over printers. For instance, you can now define a sequence of printer codes to be sent at the end of each print job. A special printer driver that filters out all printer codes is included to ease the passage of text between Perfection and other text management programs. Old printer drivers from previous editions of Perfection, or even from Quill, can be imported directly into the driver manager, translated into Perfection SE equivalents and saved for future use.

Pro Publishe

Significant improvements have been made to the links between Perfection and its stable-mate Professional Publisher, centered on the inclusion of the PUBCONVERT utility. It makes sense to write the body text of a document in Perfection and then flow the text into columns created in Professional Publisher. Depending on your printer and the amount of memory in your QL, the results can be very satisfying. The flow of data is not all one way from Perfection to Pro Pub: a program called PROPUB_INSERTER is provided so that graphics created in the desktop publisher can be embedded into text documents created by Perfection.

Incidentally, Perfection users who do not own Professional Publisher can buy the latter with a special 20% discount (over and above any other applicable discounts) for up to two months after buying Perfection.

Users who bought earlier versions of Perfection will be pleased to see responses to many of your wishes included in the Special Edition. Left cursor movement now does not stop at the left of the current line (as Perfection's author thought was best) but continues at the end of the previous line. Advice on double-spaced printouts is included (simply put two CHR(10)s in the "end of line code" of your printer driver). Searches are no longer so fussy about what constitutes a word boundary (although SE still falls slightly short of The Editor in this respect). In standard Perfection, when a word was inserted into a line justified left and right the spaces either side of it might have been "soft" ones put there simply to pad the line out. On reformatting the paragraph the new word could become concatenated with its neighbours if the soft spaces were no longer required. In Perfection SE this never happens.

One feature that some don't notice and which drives others mad is the amount of paragraph reformatting that can go on while you edit text. Some users found Perfection a little fussy in its desire to present pristine paragraphs at all times: the latest amendment to the program waits for the user to stop typing for a while before it

quietly tidies up the layout.

Finally, the Special Edition tag also applies to the manual. Most of the guide is an edited reprint of the earlier version's manual. An extra chapter has been included on the significant differences between Perfection and Perfection SE. In response to customer feedback there is also a fresh attempt to explain macros. You can't say that Digital Precision aren't trying to please.

New User!

Existing users of Perfection are already aware of the practical and technical advantages the program has over Quill, the wordprocessor nearest to Perfection in spirit. To view Perfection from an experienced Quill user's perspective I sat alongside a colleague as she used Perfection for the first time (without the aid of the manual, I might add).

Her first impression was one of reassuring familiarity because the screen design bore some similarity to Quill's, albeit with more information shoehorned into its menu area. All the essential menu options have names identical to those in Quill. The greatest reassurance that the user was indeed in the driving seat came when Sue attempted to load a Quill file. There was no fuss, no special command, no confusing question; Perfection simply did as it was told and brought the text onto the screen.

The screen layout, which looks very busy at first sight, quickly begins to make sense. Digital Precision have included an attractive italic font, although colour rather than heavier characters is used to indicate bold text. The bottom line of the screen can be toggled between two modes, the first giving location and modal advice, the other providing secondary information such as a word count. Pressing F1 brings up a comprehensive help facility showing pages of cursor movements, control keys and menu options. Almost every letter of the alphabet has been pressed into service with Ctrl and Ctrl-Alt to provide hotkeys for adept users. If you are a keen hotkey definer you will be pleased to note that Perfection leaves most Alt-key combinations untouched.

The discoveries began to trip

Definition strips in action

```

F1 HELP          SHIFT F1 last cmd. ESC Escape/Cancel  ↑↑↓↓ by char/line
F2 Menu on screen SHIFT F2 Mode8 ↔  SHIFT F5 one/two - + SHIFT para/word
F3 Menu 1+2+3+1  SHIFT F3 Menu3+2+1 windows; F5 selects + SHIFT/ALT window
F4 Refresh screen SHIFT F4 Size/Move ALT F5 Over/Insert CTRL C toggle job

- Adjustable screen size and position (2.1.2)
- No restrictions on length and character attributes of headers and footers (2.1.3);
- Detailed status and statistical information on the document (2.1.5)
- Incredible speed of cursor movement, scrolling and block definition (2.2.1 and 5.6) - virtually everything instant

- Eight (!) invisible pointers that the user can mark (i.e. set) and then go to (2.2.2); eight user-definable strips for print effects
- Blinding speed of searches (2.2.3); this makes the PERFECTION SE a sound choice for use as a manager for simply-structured databases
- Backwards searching (2.2.3)
- On-screen differentiation of hard and soft page breaks (2.3.2)
- Full support for italics (2.4.1) as well as emphasised (i.e. bold), underlined, superscript and subscript and combinations thereof
- Maximum line length user-configurable, default 1024 characters (2.4.2), maximum 32000
- Undo facility for modifications within the current line (i.e. the one that contains the cursor (2.4.2))

COL18 LIN93 77142 PAG10 CAPS NU LJ OV CS ↑↑ NO LZ KT SP 1S #101

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"Lazy screen"

After some prompting, Sue began using keyboard shortcuts for some of the menu options. The result was an immediate improvement in keyboard productivity. Pressing Ctrl-S for Save and Ctrl-L for Load became second nature. Other

On the whole, less confident users will probably favour the on-screen menu for selecting options rather than learning all of the Ctrl-key combinations. Some interesting use has also been made of cursor key combinations to provide short cuts. For instance, pressing Ctrl-Shift-Up forces the current word into upper case and Ctrl-Shift-Down forces lower case. Other options allow text to be deleted a line at a time, and for the cursor to be speed-shifted to the next highlighted piece of text. Long association with Quill stopped Sue from expecting to be able to undo any error, but Perfection will restore the current line to its former state should any changes be reconsidered. It is also easy to export a marked block of text to disk before editing it: should the edits not be liked the original can be re-imported.

Once basic editing had been mastered we decided to explore what we could do with Perfection without referring to the manual. The menu system is slightly cramped, being spread over four pages each the width of the screen and four lines deep. Nevertheless, no option

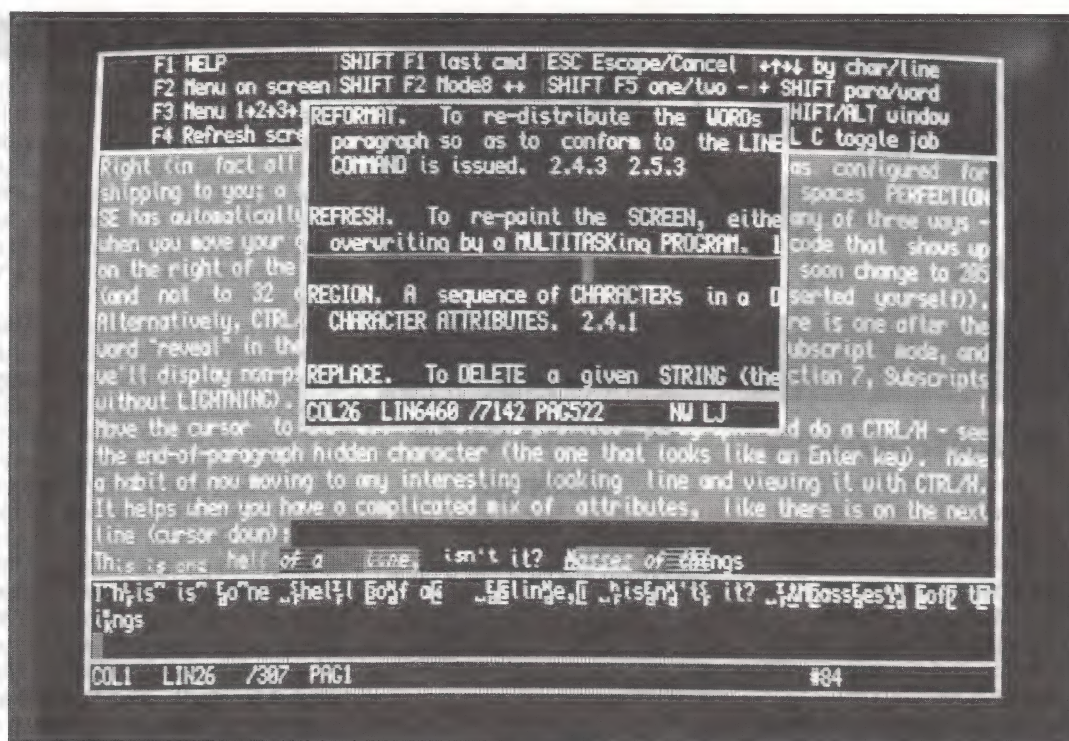
It was not until we defaulted to Perfection's manual that we discovered that you can indeed highlight a block first and then delete it. From the keyboard, the actions are to move to the start of the block, press Alt-F2, move to the end of the block and press Alt-F1 and then place the cursor into the highlighted area

Speed!

Whether Perfection is faster or slower than the Editor by some clinical test is neither here nor there: what is important is that Perfection is blindingly fast at most things and you are never left waiting for it. I embedded trigraphs at various points in a 7,000 word Perfection document and used the forward and backward search options from either end of the text to find them again in less than two and a half seconds. I copied 800-word blocks of text to all parts of the document in around a second (excluding navigation time). I deleted text from the middle of an emboldened clause to the middle of an italicised clause and watched as Perfection knitted the remains of the paragraph together in under

Above: The Help screen

Below: DP provides the word of God!



a second.

One interesting statistic was gathered when we tested Perfection's search and replace facility. Using our 7,000 word document I asked it to search for every occurrence of the word "Basic" and replace it with "BASIC" (I can never remember which editors prefer their acronyms capitalised). (Not this one - Ed.) There were ten of them and even though I confirmed that all of them had to be changed, Perfection briefly showed each occurrence to me and did the change while I was watching. Had I wanted to, I could have stopped the operation if it became clear that there were occurrences that should not be changed.

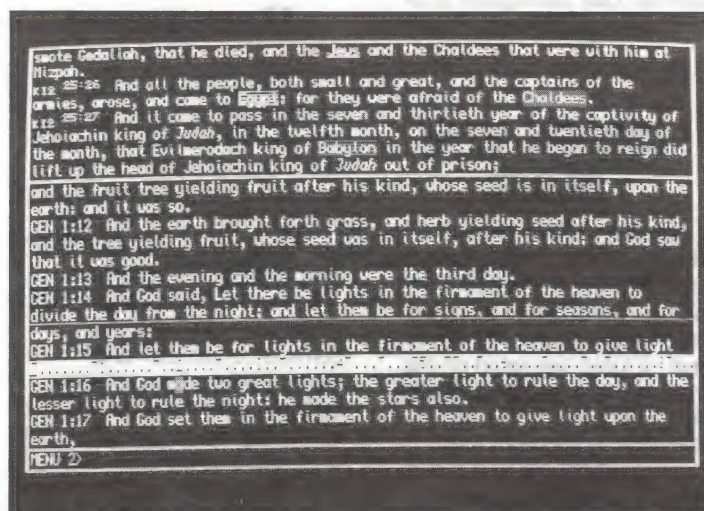
The whole operation took some 40 seconds to complete, hardly world record stuff. A quick hunt in the help file revealed that a particular key combination toggles between this "are you really, really sure" approach and a faster "I hope you know what you're doing" mode. The faster mode cut out all screen redrawing while it raced through the file in under 12 seconds changing all the "BASIC"s back to "Basic".

Incidentally, all of the timings were taken using a very old and very conventional QL equipped with nothing more serious than a 640K Expanderam card. Gold Card owners can imagine for themselves the impressive speed Perfection gives them.

Invisible Inserts

There must come a point, of course, when the manual simply has to be read to discover some of the less intuitive, but often more powerful, aspects of a program. The role of "invisible inserts" was not immediately apparent, but as soon as the manual mentioned that the facility was for embedding printer codes the whole thing became obvious. The trouble with invisible inserts is that they're often difficult to find again - but Perfection has a "reveal codes" option that makes them easy to spot. A special invisible insert is used to identify where a Professional Publisher picture will be placed when the document is printed. The best way to view hidden codes and their effects is to open a second window with the "reveal" option set.

One by one, Perfection eradicates all of the weaknesses and omissions that Quill users have taken for granted for all these years. Printer definition files are a case in point. Perfection lets you establish any number of printer files and then allows you to select any one you want even in the middle of editing a document. You can even "print" to a file using a special printer definition that changes Perfection codes into those expected by Professional Publisher. Double-spaced documents are obtained by making a printer data file with two newline codes at the end of



each line instead of one.

If you buy Perfection's dictionaries (which is recommended) then you can spellcheck on the move or at the end of editing a document. You can put your own words in a supplementary spelling file that might include, for example, all of the reserved words in SuperBasic, or words that occur in the names and addresses you most frequently use. The speller can work on a set of pages, a defined block or on the whole document. It will even work through a Perfection-format file when Perfection itself is not running.

Steve Sutton, the creator of Perfection, is deservedly proud of the very neat memory-management routines that his program implements. They even tidy up fractured heap space left by other programs! For most

users the technical aspects are not of much concern: Perfection works flawlessly and fast and that is all they wish to know. However, the curious are rewarded with a short explanation of some of Perfection's memory-feats towards the end of the manual.

Perfection is everything that Quill never became: easy to use, very flexible, loaded with genuinely useful features, cleanly multi-tasking, capacious and incredibly fast. If you haven't got it, you're missing out. The Special Edition offers twelve-cylinder power and luxury to an already impressive package. However, be warned: if you see Perfection SE running on a Gold Card you will want to upgrade your hardware immediately.

QL Scene

Wilkommen

The long-established Swedish QL User Group has at last named a contact address for non-bulletin board users. The Group has four to six newsletters a year, monthly meetings in Gothenburg and Linköping and clubs trips - one within Sweden and one overseas - twice a year to meet other QL users. Contact Johan Borman, Lilla Cedergatan 5, S-412 96 Vastra Frolunda, Sweden.

CHECK THE MAG

Apologies to Simon Goodwin and his machine code followers for a drop-out in line 850 of Listing Two on page 32 of last month's DIY Toolkit. Not Simon's fault - it looks like liquid on the master! The missing figures are "8118". Readers hit the phone immediately and Fran had contacted both me and Simon before we had our issues. Simon says: "It's a bit of luck. It's one of the few places in the listing where sharp programmers can deduce the missing bits from the Assembler listing." The repair given should cover everything, but if anybody wants a photostat of the original listing, please send an SAE for the Editor's attention.

Pointer Querie Answered

QL World would like to add that the program featured in Figure five of The Pointer Environment (page 37, QL World, February 1993) was written by Phil Borman of Quanta. Phil confirms that the program is on the Quanta library disk UTILS_GEN4, and that the disk SPECIALS_0, mentioned in the same article as the source of TK2_EXT and LRESPR, is listed as SP_0 in the current library catalogue.

Machine Code Listings

People who asked for replacement listings for Systematic Machine Code up to the middle of March should have received them by now. If by any chance you haven't, please drop me another line.

Fleet Manoeuvres

Di-Ren, publishers of epic naval wargame Fleet Tactical Command - something unique in the annals of the QL - are established at their new address in Walsall and have issued an update to their useful QL/PC link program PC-QL Fileserver.

The most recent version 1.02, released in late February, corrects certain EOF and Minerva interaction problems. Existing users can update free of charge by returning their QL disk only, and a suitable stamped self-addressed envelope, directly to Di-Ren at the address below. Updated serial connection pin-outs are available on request.

Apart from existing-user updates and technical queries, all sales enquiries about Fileserver and FTC should be directed to Dilwyn Jones Computing, agents for Di-Ren.

Di-Ren, 59 William St, Walsall, West Midlands WS4 2AX. Tel. 0922 33580.

BLOCKAGE CLEARED

Digital Precision has come back to QL World with another reply to Mike Edwards' observation that a paragraph move had taken Perfection 25 seconds in his hands not an unusual benchmark, but one that Digital Precision feels is unworthy of Perfection. They write:

"Mr Edwards concluded in his review ('Three in the Hand', QL World, April 1992) that Perfection (even in its first released form: the current V3 and V4 Special Edition are much better) was the fastest and simplest QL word processor, 'ideal for letters and documents'. Quite right too.

"However, there has been controversy about two (out of eight) of the reviewer's benchmarks: two that did not show Perfection as outright fastest. We confess to laughing when we read that he had timed Perfection taking 25 seconds to move one paragraph forward by a page, when the same version was timed by us moving a thousand paragraphs forward by a hundred pages in one second... Also, we were contacted by Perfection users who commented how absurd some of the reviewer's timings appeared. One user wrote to QL World ('Seconds out', Open Channel, July 1992) asking if the reviewer had got the decimal point wrong.

"The reviewer responded in September 1992 that what he had measured was 'total user time' - (We hope so, because nobody in the QL World office can work out where they're supposed to be on the page in one second flat, let alone shift 1,000 paragraphs to another location.) - 'and that he had practised before testing. He also disclosed the method he used to move the block, and so the mystery was solved.

"Perfection is very flexible, and there are usually two or more ways of doing the same thing. One of Perfection's extras is that it is possible to have any number of highlit 'candidate blocks' (memory permitting - but even on a minimal ram system you could have 100,000 of them). You can then point to any one of these areas and opt to make it the one to be used in the next block operation. But, usually, users want just one block at a time (and most word processors - including all other QL ones - allow only one). The drawback of doing things the multi-block way is that it is slow (extra keypresses, manipulation and logic are involved - which block is meant? Are there conflicts between blocks? Is the move 'into' a candidate block? etc.). Relatively unfamiliar with Perfection (as he admitted), the reviewer chose the complicated route, and also chose to wait at each stage for all screen activity to cease before progressing to the next stage - unnecessary with the asynchronously-driven Perfection.

"What the reviewer should have done was to use the simple method: the 'Block Move' option, located prominently on the very first menu! The user is prompted for the start, end and destination. As navigation by para and by page are both single key-combinations and are instant on Perfection, you will not be surprised to learn that our overall timings for the test was under five seconds, total user time, without practice (three seconds might be achievable with practice and fast hardware). A young acquaintance of mine, who has never before used a QL, did the test in six seconds. As the fastest block-moves in other programs took 17-18 seconds according to the reviewer, the correction is significant.

"The review time for global replace string is also non-ideal: you will get slow timings if you have querying of replaces switched on (a deliberate safety move by us) but many times (35 times on SE) faster with it switched off."

Mid-London Moves

Quanta Mid-London Subgroup have changed the venue for their monthly meetings. They now meet at Prospect House or University of Delaware St. Mary's Church Hall (no shortage of names there), Wyndham Place, Marylebone, London W1. Wyndham Place is a tiny protrusion off Crawford Street between Seymour Place and Upper Montague St, according to my A-Z, and is a few fairly hair-raising minutes' walk from either Edgware Road underground station. If walking from Marble Arch, says the Group, go straight up Great Cumberland Place and Bryanston Square, and you're opposite the church. There is parking in the side-streets. The March meeting was on the 'teen Wednesday, from 6.30 to 9.45; if you want more information, call Colin Murphy on 071 328 5407.

Helen Armstrong hitched a ride to Holland for the big show.

QL INTER- -NATIONAL!

1993 is the first year in which the Dutch QL user group, Sin_QL Air, and the German user group Sinclair QL User Club eV joined forces to organise the International QL Meeting in Eindhoven in The Netherlands. Eindhoven is a large industrial town with international trade fair connections. The show was in the more homely St. Joris College, a local school in a leafy suburb.

Arriving the night before at the motel which the organisers had chosen (we were told that Quanta stayed here last year and liked it!), we (Bill Richardson of EEC, helping-hand David Johnson, and me) discovered the Motel didn't take company cheques and didn't like Visa cards. It was also pricier than we expected - that'll teach us to check our lists more carefully in future! Euro cards and Eurocheques were acceptable - but we only had my meagre wad of Dutch currency, not enough for three rooms and food - so it was off for a day's trading before we paid the hotel tab. (Thanks to the graciousness of the Dutch to let us do it that way.)

Early start!

Setting-up meant an early start. While the traders were still unpacking boxes I talked to a couple of people showing off their private systems.

Peter Bollig-Tendyra demonstrated that old is still workable by running a personal system with the old ABC keyboard from Andreas Budde with Das QL Tastatur Interface,

and driver software from Jochen Merz.

of the multitasking. The whole concept of the QL is based around multitasking, and



He's had this keyboard rig for about three years, and has fixed it up using Alt-PRINTSC to switch between the German and the Ascii character sets. His Qimi mouse also from Merz; he's very pleased with it. He uses his rig for personal computing rather than professional work.

A wonderful piece of red and green 3D software signed by Ralf Bat-Zelt was on show a few tables along. With the help of red and green 3D spectacles, the moving grid reaches out of the QL screen and follows you around when you move! He also had a beautiful graphic of 'glass balls' rolling around and shedding complementary-coloured shadows on a black and white background. The kit was an old Expanderam and Sandy Q Board disk interface, still working well. He is waiting for Miracle's QXL card, but, he says, "Even when it comes out and I can afford it, I will wait for six months to see if everything is right" He's a PC user too, but, he says, "The QL has the advantage over IBMs because

this is not the case with the PC. It can be done, but only with tricks."

From the past

Talking of Andreas Budde, the



man himself is here and introduces himself (although we've met before). He's now working with a business called EXTRABYTE, and gives me his card, asking if QL World could

let people know about their new project, which is really a PC project. They are doing a 680020 board for the PC - an HD cache controller with 60MB of ram and a parallel interface. So what is he doing here? Budde reckons they could add Qdos "if enough people are interested", or people could run Qdos on it "If they have the knowledge." He mentioned a price of 700DM inc. tax. For anyone who is interested in more information, ExtraByte's address is Stuckenstrasse 65, 2000 Hamburg 76, D-Germany. Ask for Andreas Budde, sales manager ...

Programmer Carlo Delhez is here with his shareware Spectrum emulators, Spectator and Xtricator. "I had quite a lot of response after the article in December's QL World", he said. People still think that a mention in the Press is a magic password to wealth and prosperity - but people

will only follow up if you have a product which interests them, so it looks as though Spectrum emulation interests quite a few people at the moment.

Pointer products

Not enough people have heard of Pointer Products, mainly because Bob Weeks, who is an agent for Jochen Merz in the UK, talks to people via his bulletin board and is otherwise quite laid back about publicity. In person he's more than eager to talk, though.

"People have become worried about the high cost of sending money abroad, and postage," he says, "And the high cost of sending equipment if any repairs are needed with hardware products." So he acts as the agent. Bob's Bulletin Board is known as the Little Green Forst (you'll have to ask him why) on UK 0256 331998. This is also PP's voice line for orders and enquiries - "Shout at it to make it listen," Bob says.

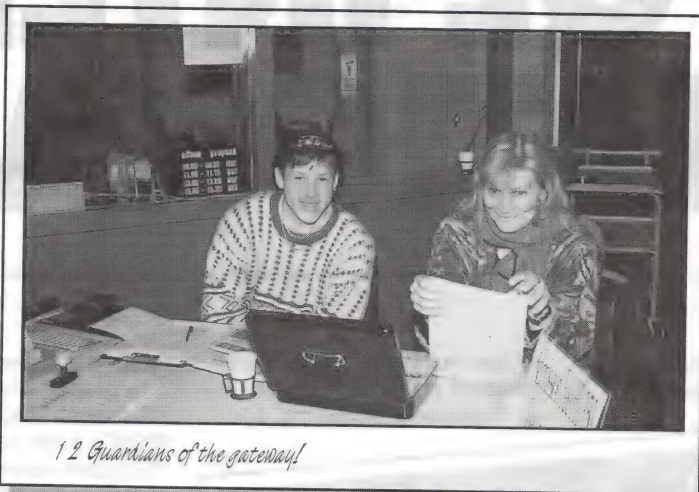
Talking of Quanta, all the committee are here except John Mason and Terry Harman, although Ron Dunnett is hard at work on the Qubbesoft stand further along the hall, selling Trump cards and public domain software. Roy Brereton and Geraint Jones are on the Quanta stand most of the day. Phil Borman and John Taylor are around and about, and Bill Newell is doing his bit for public relations (see the photo).

Dallying

Roy reckons Quanta "lost about 350 members in the recession." He now thinks that quite a few older members are coming back. Competition from other machines is also a factor in wastage, but even then, they find that some people come back after a few months of dallying with a new love. He reckons they have a 'hard core' of 16-1700 members.

Quanta are selling the Qimi mouse interface for about £25. The QL SuperBasic The Definitive Handbook by Jan Jones looks lovely in its new

spiral-bound Quanta cover. By the end of the day they had gained 12 new members and



12 Guardians of the gateway!

sold around 300 library disks at around £2 each.

Sin_QL_Air - the Dutch user Group - report a membership of about 200 and they are finding that new young members are digging out their fathers' old machines and starting on them, "So we are getting the same questions again!" Cor Biemans is now Chairman, and Marco Holmer is editor of their magazine - also, like the German one, called Quasar, but nobody seems to mind.

Germans return

The German are also finding that their membership is pretty stable

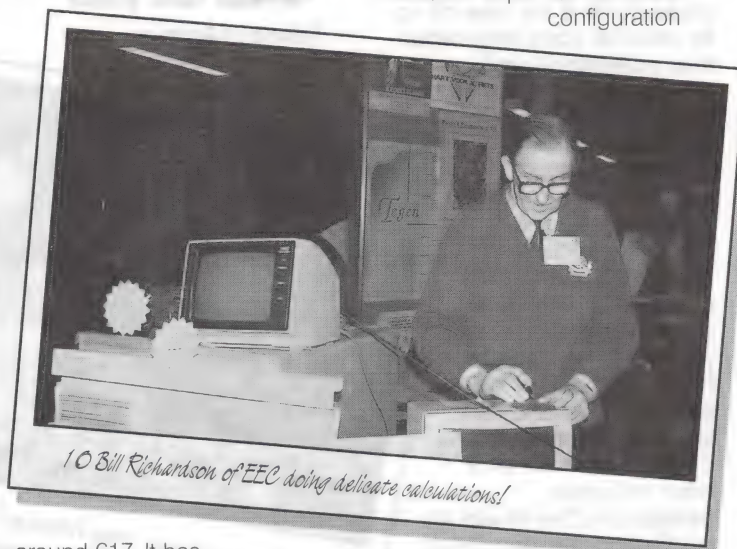
best emulator software is still too slow with fax software.

Jurgen Falkenburg - who has been publicising his new QL2000 casing system recently - had special offers on most of his hardware and was busy behind a huge stack of equipment throughout the day. Jurgen carries software such as Albin Hessler's Easy-PTR, Jurgen Hessler's DISA disassembler and Digital

Precision's PC Conqueror, as well as Gold Cards, but the main attraction on the day was Jurgen's own QL-KeyBoard-90 interface, which he sells with or without the keyboard itself, and the HDD-Card system, which he sells either as separate card, OMTI controller and hard disk unit in various memory sizes, or as a complete build-up system. User requirements really need to be discussed with Jurgen, who is easy to reach on the phone.

Thor support

Urs Konig of Cowo Electronic has been working on the ExeQutor super-QL hardware configuration



10 Bill Richardson of EEC doing delicate calculations!

around 617. It has gone down due to high postage and also people moving to other machines. But the club is also finding evidence that many lapsed members return after a period away. There is some evidence that they do! They'd like to see a fax card for the QL - even the

this last year.

Urs is now offering "a more powerful machine in the same case," with a PC motherboard plus the new Miracle QXL board when it comes out, plus Tony Tebby's SMS2. No prices at the moment, and no delivery dates at the moment. He has a

waiting list in Switzerland and ExecQtor won't go to the edition of 50 - the Mark 1 went to 11 units. "A lot of people are building up their own machines", says Urs. This is well borne out by some of the systems at the show, although by no means all of them are modern or new! Modular is definitely the word.

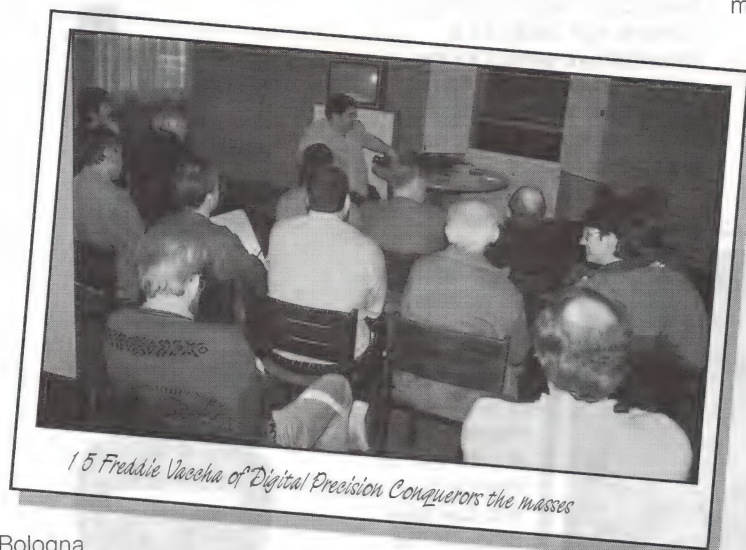
On the software side, the new release of their pointer-environment QTop 1.20 (its third major release) has a new icon-based file menu and better, "optimised" directory-handling. Running within QTop is a menu called Archiver, a new application which lets you use archiving utilities for the QL within a flexible shell making use of the new icon-based file-manager in QTop. Version 1.20 has a small parser where you can set it up via a multi-choice menu which creates commands, pick and mix, and send them. The latest version of zip and unzip in the package.

There is also a new release of the ArchED text editor, and Cowo will continue to update QTop as new text display modes come in. Fred Toussi, Dilwyn Jones and Jurgen Falkenburg are distributing, but you can also order direct from Cowo using Eurocheques. Urs said it was a good meeting, and sold about 10 Q Tops, and some Gold Cards too. He also supports the Thors.

From Italy

Eros Forenzi (editor and guru) and Roberto Orlandi (who runs the user group) were there on behalf of QLItaly. Eros reckons there are about 200 Italian subscribers, and that QL World is only found in newsagents in the biggest cities. Their new paper-based magazine is Mondo QL, is out twice a year. Until now they have only issued a disk-based magazine. The first issue, for December/January, is out now. They may decide to run a second QL Italy show in September of this year. The Italians up to now have relied on only one annual meeting. Transport across Italy is difficult, with most users in the North and a six-hour drive from Rome.

Tony Frishman of TF Services is a happy man. "It's been staggering, the best for years," he says. He reckons there has been a resurgence in hardware buying, beginning with the



15 Freddie Vachon of Digital Precision Conquers the masses

Bologna fair in January. Virtually sold out of Minervas and Hermes, he was glad he came with "enormous stocks." Earlier in the year he had been to the Glasgow All Formats Fair, and sold virtually nothing, but at the end of the day he had sold about 35 Hermes.

Analogue interface

New from Tony is the I2C Analogue Interface. Minerva has I2C bus capability, and Tony's famous friend Henry the Robot is in the process of being reincarnated by Wayne Weedon in a metal body with "proper" analogue and parallel interfaces off the I2C bus. You can plug these two separate units - each about 3 x 2 x 1 inch in size - together. And Tony is planning more plug-in devices to do the hard work of interfacing external machinery to the QL, including a "fairly slow" oscilloscope for building traces. Anyone who wants technical data on the Philips I2C bus should talk to Tony - he can point you in the right direction.

"The real beauty is," he says, "the hardware is desperately simple. It's all in the software. I'll be providing the skeleton tools. We provide the interfacing, sending and receiving at the same time."

As I speak to Stuart Honeyball frequently I didn't grill

him on the day, but he was busy. Eschewing his bike this time, he came from York by train and told me later that it had been one of his best fairs ever. "I didn't take enough stock. I could have stuck a few more Gold Cards in!" Noud has finished his sandwich course now but was still visiting for the show. His lecture on the forthcoming QXL was one of the most popular of the day.

The same goes for Digital Precision, but I noted much activity around the stand whenever I looked up, so after I had attempted to snap Freddie

much) I had a word with Julie, who confirmed a good day. "There has been a lot of interest in Perfection - the Special Edition, obviously, - and over the rest of the range, QMaths in particular. I've sold out of quite a few things."

Show discounts

DP were offering special show discounts up to 37%, and bigger ones for multiple purchases, along with all the savings in post, packing and VAT surcharges. This is at a time when the Dutch florin, deutschmark and Belgian Franc are strong against the pound, a considerable boon to Continental buyers of UK products. They also (I heard) extended the special offers to mailing-list customers who had not received

slow. He is showing some updates - QMenu V4 and QD5.

Hyper HELP

He showed me HyperHELP for SuperBasic. This is interesting. You can select from a menu any keyword and you get a scrolling screen which tells you about that keyword. You can edit the Help information fully as you go, select a keyword from within a listing, and (I gather) delete the ones you don't need, or add new ones as you go along. In one way, it is a dream come true - no more thumbing through the User Guide, and you can adjust the explanations for maximum clarity to suit your own understanding (but keep your original file!). The Help texts are available in German and English. Says Jochen, "All

my programs will come with Help specific to their procedures in future. You can use it to get cross references, entries to libraries, machine code modules, and so on." It can be obtained separately or as part of QD5, his

program editor using

the pointer environment. Also new on QD5 is the QD Thing-Interface for assembler programmers, which is "Much more flexible than the old one."

Jochen was also showing off the startling QVME QL emulator card for Atari STs. Mega STs need one extra interface card. Windows? "As many as you want," says Jochen. It's fast, and you can connect more or less what you like to it - ports, Midi, Serial and Parallel. The floppy and hard disk drivers, will drive up to eight hard disks - of any size, and removeables - and two floppy drives. There is a real-time clock, and a keyboard interface. "It's a QL emulator, so it has to behave like a QL," Jochen said - apart from the increased speed and the beautiful display!



9 The QItaly stand - heads down all day

their show mailshot in time for the show (due to a small postal problem). DP were showing entire range of 85 programs - (blue, yellow and pink - they have given up printing manuals on ruby and emerald coloured paper! with many updates for 16/32-bit systems.

If the UK traders were

having a bumper day, some of the locals were just gently bobbing. Jochen Merz said that his day had been pretty good - not berserk, not



30 For the organisers - Merz and Cor of Sin QL Air

lecturing a sizable audience on the newest Conqueror (I hope I didn't frighten the gentleman sitting in the chair in front too

Network

Jochen was running a hardware network of STs using QL software, and he demonstrated the network loading and running new software almost instantaneously. The display frequency

can be programmed in Hertz to suit your monitor - the lovely crisp display he was using, crystal white on jet black with luminous green details, was "a very cheap monitor," displaying at 120 Hertz. "It allows you to get the best out of any monitor," he says. It is fully pointer-driven. Pointer programs use the full screen and you can make the windows almost any size. Bob Weeks shows it at some shows in the UK - use his BBS number and shout at the telephone (to initiate disconnect) to ask him where he's going to be.

General business has been "So-so". QD, QMenu, and QSpread (which got quite a lot of name checks in the recent QL World readers' survey) are current

out - part "3" has a new section dealing with C, where previously it handled SuperBasic and Machine code only. EasyPTR is a menu-driven tool for program developers, written by Albin Hessler, so I went to talk to him.

them to see results on their screens right away." It's a development system for the pointer environment - The SuperBasic toolkit can set up very complex programs with it," Says Albin.

The UK traders had mailed about 1000 people, and met 200 of them at the show. Not a vast show, but a good number for a QL meeting, and all with serious intent to try and buy new products. Bill Richardson was philosophical about trade - customers had been looking for

new QL-specific

hardware rather than peripherals - but pleased to be meeting people, and there was certainly no problem about settling for his and David's hotel rooms!

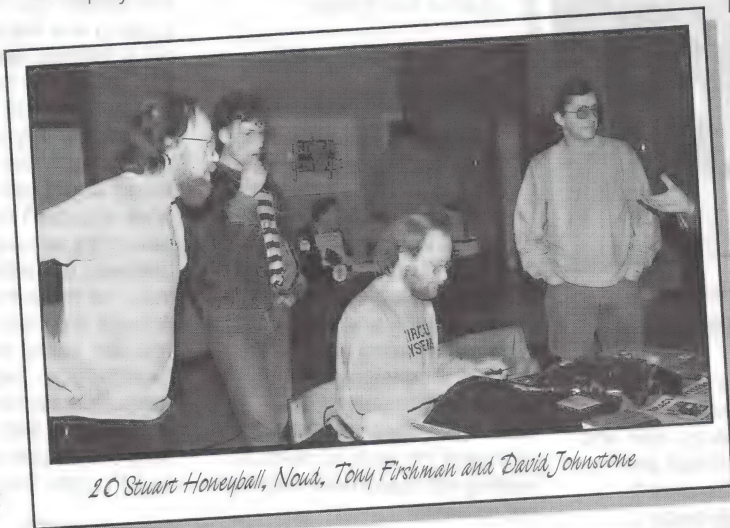
Helicopter

Earlier in the day another trader had shown me a pointer program demo written with EasyPTR, a magnificent helicopter sprite, hovering on both sides of a vertical wall! Menu definitions, the sprite generator, and a SuperBasic toolkit are the main part of the program, which is specifically for pointer environment program development. In the

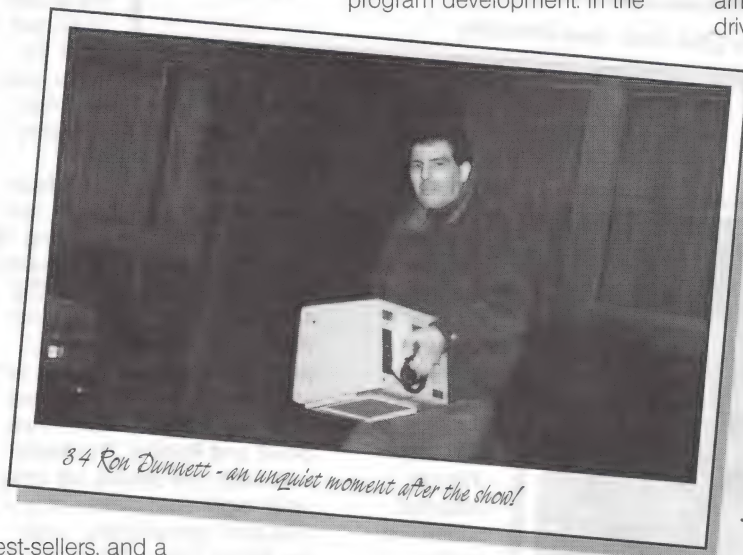
Take the train

However, we decided not to stay a second night and took leave as the cheerful crowd of Quanta overnighers and Freddie and Julie from DP were arriving. Thanks to David's driving we had an easy trip

back to Calais (despite a major snow blizzard on the way), and arrived back in Amersham at 1am on Sunday. Many UK visitors sis the same - an overnight drive there or back, and a one-night stop - many worn out QL users by Sunday night! A few stayed two nights, and Stuart Honeyball (who ragged us for grumbling about the motel charges) travelled overnight in both directions - by train! A wise man.



20 Stuart Honeyball, Noud, Tony Firshman and David Johnstone



84 Ron Dunnnett - an unquiet moment after the show!

best-sellers, and a steady seller (to my surprise, considering the readers survey came out strongly against games is The Lonely Joker. But card games are among the most popular. EasyPTR3 is now

latest upgrade there is a library for C programmers and one for Assembler programmers to set up and control menu definitions. One aim of EasyPTR is to help programmers make pointer programs more user-friendly, to make control of the programming easier and allow

QL INTERNATIONAL

▶ INSTANT

a N c S c T e A s N s

HARDWARE

Care Electronics

0923 672102

Tebby connection but no longer dealing directly.

CL Systems

081 459 1351

Real Time Digitizer

Computer Technik

(Jurgen Falkenburg)

010 49 7231 81058

(Germany)

Hard disk interface, hard disk systems, tower housings for QL systems.

Dilwyn Jones Computing

(DJC)

0248 354023

Process controller, Power regulator, network prover.

Miracle Systems

0904 423986

Gold Card expansion card; disk adapter; Extra High Density disk drives; Centronics adapter/lead; ED disks.

Qubbesoft PD

0376 347852

Miracle Trump Card, Expanderam, twin 3.5in disk drives. Sales and support.

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Complete QL systems, monitors, keyboards and interfaces, disk drives and printers, peripherals.

TF Services

071 724 9053

Hermes IPC, Minerva rom, keyboard membrane, repairs, spares.

SERVICES

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0952 255895

Spares, repairs, support, peripherals.

Joe Atkinson

36 Ranelagh Rd., London W5 5RJ

Roms, mdvs, all spares.

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081 902 5218

Repairs

QL World

(Readers' Services)

Subscriptions, binders, recent backissues.

0993 811181

Ask for Fran.

Quanta

General Secretary:

Ron Dunnett

0376 347852

User group, support, library.

SOFTWARE

Athene Consultants

0705 511439

ARK Distribution

0983 79496

Archivist, Master Spy, Spy.

CGH Services

(Richard Alexander)

0559384 574

Adventures, public domain, DIY Toolkit.
(Closing for business 31 March 1993 - enquiries about past products only)**COWO Electronic**

010 41 45 211478

(Switzerland)

QTop, Atari QL emulator, Thor support

Deltasoft

0272 792605

FlightDeck, Image D, AMD Airplan

Digital Precision

081 527 5493

Perfection, PC Conqueror, Lightning, Professional Publisher, Eye-Q, Solution, Spellchecker, The Editor, Media Manager, Professional Astrologer, QMaths, CPort, and others.

DJW Software

0256 881701

Homebanker

Dilwyn Jones Computing

(DJC)

0248 354023

Discover, Textidy, QL-PC Fileserver, Fleet Tactical Command, Basic Reporter, QLiberator, Filemaster, The Gopher, The Painter, Flashback, DataDesign, QPAC2 and other Pointer Environment programs, others.

DI-Ren

081 291 3751

Fleet Tactical Command

(Dist. by Dilwyn Jones)

Ergon Developments

(Davide Santachiara)

010 39 342 492323

(Italy)

ZM-X ZX Spectrum emulator, Open World, other QL software.

Jochen Merz Software

010 49 203501274

(Germany)

QL/Atari emulators, QSpread, File Finder, QPTR Pointer Environment Toolkit and other PE programs, QDesign 2, various games, and others.

Lear Data Systems

6 Southview Green, Bentley, Ipswich, Suffolk IP9 2DR.

PCB-CAD

Liberation Software

081 546 7795

QLib Basic compiler and utilities.
(Dist. by Dilwyn Jones)**Pointer Products**

0258 455117

Pointer Environment programs

Progs (Van Auwera)

010 32 16 48 8952

(Belgium)

The Painter, The Clipart, DataDesign, QRactal, and others
(Dist. by Dilwyn Jones)**Qubbesoft PD**

0376 347852

QL Home Finance, Public Domain software.

SD Microsystems

0462 422897

General Ledger, Small Traders' Pack/Invoicer and Stock Accounting. Other business software.

SJPD Software

0282 51854

Public Domain software

Software 87

33 Savernake Road, London NW3 2JU.

Text87 Plus4

TF Services

071 724 9053

Qualsoft QL Terminal Emulator, File Transfer.

WD Software

0534 81392

Notes:

Addresses are only given where there is no business line. For Fax numbers, phone dealer or check ad. in QL World. Only larger dealers have Fax, often on the same number. Some numbers no longer active in the QL world are given for reference and support queries.

The ZX Spectrum was the QL's predecessor and the most successful computer Sinclair ever produced, selling millions world-wide since its launch 11 years ago. Now QL enthusiasts can benefit from the plethora of books, magazines and programs aimed at Spectrum users, thanks to emulators which run Spectrum code and Basic on any Qdos machine.

I've tested the ZX emulators on expanded QLs with and without Gold Cards, Thor XVI, Amiga Qdos and the ST/QL. You need genuine QL hardware to read ZX tapes directly, or generate Spectrum sound, but the emulators work on all the Qdos variants I've tried, including Sinclair roms and Minervas. There's no problem running one emulator on top of another - in fact ZX emulators benefit from the extra speed of full 68000-based machines.

As it was for many QL users, the Spectrum was my first Sinclair computer; I worked as Technical Editor of *Crash* magazine, organised last year's ZX-92 tenth birthday party, and have written ZX compilers, utilities and games, so I'm well placed to comment on the inner workings of the machine.

International

I shall compare six QL ZX emulators from three countries. At least one more exists - ZX from Russia - but its authors have yet to contact QL World with details.

The first known QL ZX emulator is *Speculator*, written between 1989 and 1991 by William James. This attracted interest from major names in the UK QL trade, but remained unpublished; the author moved to the Amiga, shortly before the extra speed and strong sales of Miracle's Gold Card made software Spectrum emulators commercially viable.

Meanwhile in the Netherlands Carlo Delhez completed a ZX-81 emulator for the QL, and started work on a Spectrum emulator, *Spectator*. This has been updated at roughly monthly intervals since September 1991's V0.10. I tested version 1.18, of February 1993. Carlo has been a Sinclair devotee for more than a decade; in 1983 he published a ZX-81 MultiBasic utility!

In December 1991 the Ergon Development team picked up

the torch, obtaining a Sinclair Spectrum Interface 1 via *Qltaly* magazine. Their Z80 simulator was designed and written in 68000 code by Marco Ternelli, author of *DEA*. A menu-driven control system in *Turbo*-compiled Basic was added by Davide Santachiara, who wrote Ergon's elegant and useful *MasterBasic* development package.

Once I had seen the unreleased *Speculator*, and shareware releases of *Spectator* and Ergon's *ZM/1* emulator, I decided to spill the beans for QL World readers, and wrote to the authors to obtain their latest versions. By the time you read this, all the programs will probably be updated, but the essential distinctions will remain.

Where from?

Speculator is in the public domain, and may be freely copied. It comes with complete source code in QL assembly language and some PD demonstrations in ZX Basic and Z80 code. Like all the emulators, it includes a corrected copy of the ZX rom written for Sinclair by Nine Tiles.

If you own a Spectrum rom you should be entitled to use its code in a ZX emulator. The rom code is not actually in the public domain as far as we know, but since the Spectrum was discontinued by Amstrad, a message posted by Cliff Lawson on Compuserve has indicated that the company does not object to use of the rom in public domain or shareware emulators, so you should also be clear to have a look if you are just curious.

Spectator is shareware - if you like it, 'register' by sending 50 Dutch Guilders to get the latest version, programs to read disks made with an expanded Spectrum, and a 720K disk of Spectrum programs. These are mostly copyright games. Software written for older computers (games seem to be particularly affected) often drift into circulation after they cease

to be commercially available, with their copyright holders untracable (or simply ignored). The European Leisure Software Publisher's Association is cracking down on continental software theft and breaches of copyright, so if any of these are found to be affected, they may have to be withdrawn.

Ergon also take the shareware route, but they disable some facilities until you register your copy. *ZM/1* has been followed by *ZM/2*, their most compatible Z80 interpreter, and *ZM/3*, which is faster but less widely compatible. *ZM/3* is a threaded-code compiler.

If you register with Ergon you get the full versions of both *ZM/2* and *ZM/3*, plus programs on Spectrum tape for slow NET or faster SERIAL transfer from Sinclair's ZX Interface 1 to QL. Registration costs 60,000 Italian lire - around £30 - plus an extra £10 of carriage and currency charges if you're outside Italy.

Send 90,000 lire and you also get the most exciting Ergon release, *ZM/HT*, a true compiler that generates corresponding 68000 code from the Z80 program as it runs! It's worth the extra. *ZM/HT* is very fast, but it has to compile the code first.

Compilers

The Z80 interpreters and 'pseudo-compiler' *ZM/3* run at a fairly steady speed, like a slow Spectrum. *ZM/HT* is very different, as you discover as soon as you start to use it. First load the emulator task with EXEC, preceded by the supplied Toolkit files if necessary. When you press ESC to leave the ZM menu, the QL loads and starts to run a copy of the 16K Spectrum rom. An apparent bug means that the disk must be write-enabled, or the rom copy will not be found.

Once the Sinclair copyright message appears you can type in the time-honoured test command:

```
PRINT "HELLO WORLD"
```

The keyword PRINT appears as soon as you press P, thanks to the ZX keyword entry system. A coloured block blinks above the Spectrum screen, as *ZM/HT* encounters Z80 code for the first time and generates corresponding 68000 instructions. Within a second or two the cursor re-appears, and you can type the message in quotes, followed by Enter. Another flurry of compilation activity takes place, as the Spectrum rom checks the syntax of the line and *ZM/HT* compiles the code.

Now press Alt-Enter (assuming you have Toolkit 2) to recall and re-enter the line. This time the necessary code is already compiled and the command executes at once. Let's enter a more complicated line:

```
10 FOR I=1 TO 500 : PRINT I :  
NEXT I
```

Each new keyword sends *ZM/HT* on a new path through the rom, generating more code. There is a pause as the code to store the program line is generated, before it appears in the automatic listing at the top of the screen. Press R to call up the RUN keyword, and await results.

After a second the first digit "1" appears, followed by another pause and more blinking from the compilation indicator. The digit 2 soon appears, then all the other values in rapid succession. *ZM/HT* has scanned about a third of the Spectrum rom, and generated over 30K of 68000 code in a few seconds. Once *ZM/HT* has been twice round the loop all the necessary code has been compiled, and the ZX routines can run on the 68000, much faster than any Z80 interpreter.

ZM/HT has lots of options which trade speed for compatibility, so it can take a while to tame a new program. It is not compatible with as many programs as *Spectator* or *ZM/2*, but more so than *ZM/3* or *Speculator*.

Documentation

The shareware programs come with adequate documentation on disk. When you register, the authors send a neatly printed unbound A4 manual with the latest software. Spectator 1.18 comes with 30 pages of small type in good English, plus an invaluable document detailing the internal format of ZX files on the QL and other machines.

Ergon's manual is longer and more colloquial, running to 46 pages with more on disk. In each case, you need to read the documentation several times to appreciate it fully; the Ergon manual is more complicated, partly because it covers more programs but also because their programs have more windows and menus.

It would take a book to list all the differences between six emulators, but I have summarised many of them in the table. Next I shall contrast Spectrum and QL hardware, as the differences determine the performance of any emulator.

The ZX screen

The Spectrum has the same eight colours as the QL, so the emulators use Mode8. The Spectrum display occupies the middle of the QL screen; it uses all 256 pixels in Mode8, so you lose the start of each line on most TVs and some monitors.

Ergon have a 'fast mono' screen mode, accessed by F4, which uses green on black in the middle half of a Mode4

screen. The result is sometimes clearer and slightly faster than full-colour. It reminds me a bit of 'Gameboy' LCD handheld graphics.

The Spectrum display uses 'attribute colour' to reduce the amount of memory needed for a high-resolution colour screen. Only two colours may appear in any square of eight-by-eight pixels. Each pixel uses one bit to select between the two possibilities, so 256-by-192 pixels need only 6K, rather than 18K that would be needed if each pixel used a three-bit colour value.

The bit-map is followed by 768 attribute bytes, one each for 24 lines of 32 character squares. 'Attribute clash' occurs when different coloured graphics try to share a single square, and the last drawn over-rides the colours of the first.

It follows that one POKE to the ZX screen attributes can change the colour of 64 pixels and 32 bytes of the QL display. To make things worse, the lines of the ZX screen are stored in scrambled order, in three groups of 64 lines, each 32 bytes long and displaced 224 bytes from the next. The emulators have to unravel this as they go along.

Updates

There are two ways to handle updates from the Spectrum to QL screen. Speculator traps each instruction that writes to the Spectrum display and runs a routine to make appropriate changes on the QL. Spectator uses a separate Qdos task to

copy the ZX screen to the QL one several times per second.

At first Ergon used the same technique, but from ZM/2 onwards they give users the option of a 'differential screen' which updates as it goes along. Ergon only trap instructions commonly used to update the display, so a few programs still need the 'full screen' setting.

The emulators do not support BRIGHT, which slightly increases the brightness of Spectrum colours in a character square. Unlike the serial FLASH in QL Mode8, Spectrum FLASH causes colours in a square to alternate. Spectator FLASH is a bit slower than on a Spectrum. Speculator lets you turn FLASH emulation at ZX speed on or off; Ergon always implement FLASH.

None of the emulators support the fast-changing IN 255 port, which holds the current attribute being sent to the display by the original Spectrum hardware. Even later Amstrad Spectrums lack this feature, and only a handful of programs (such as old copies of Arkanoid, Short Circuit and Top Gun) are affected. Ergon let you configure the result of arbitrary IN calls to get games moving if they wait for a particular attribute.

Spectrum sound

Current emulators lack the paged memory and three-channel sound of the 128K Spectrum, but few Spectrum programs need this in any case. Most of the classics were written before the 128K model was released, and 48K-compatible

software still dominates the market.

The 48K Spectrum has a single-bit sound output, directed to an internal beeper. QL BEEP is quite different as it uses the second processor, so 68000 emulators cannot send individual clicks directly to the corresponding QL hardware.

ZM and Speculator divert pulses to the QL NET port, where they can be monitored with a small amplifier and speaker. I use a battery-powered 'Telephone listener' from Taiwan via Tandy. The tone is rough as QL and ZX timings do not correspond exactly, but tunes are recognisable, especially if you have a Gold Card. The snag is that SER and MDV devices are locked out while NET is in use.

Spectator can also use the NET port, but offers an unique option to translate ZX pulses into tones on the QL beeper. The emulator counts the pulses over a short period, then tells the second processor to BEEP a corresponding note. Results are still not very accurate but less distorted. However you monitor it, it does helps to be able to hear Spectrum sound; otherwise games seem to stop when in fact they're playing a jingle on non-existent hardware.

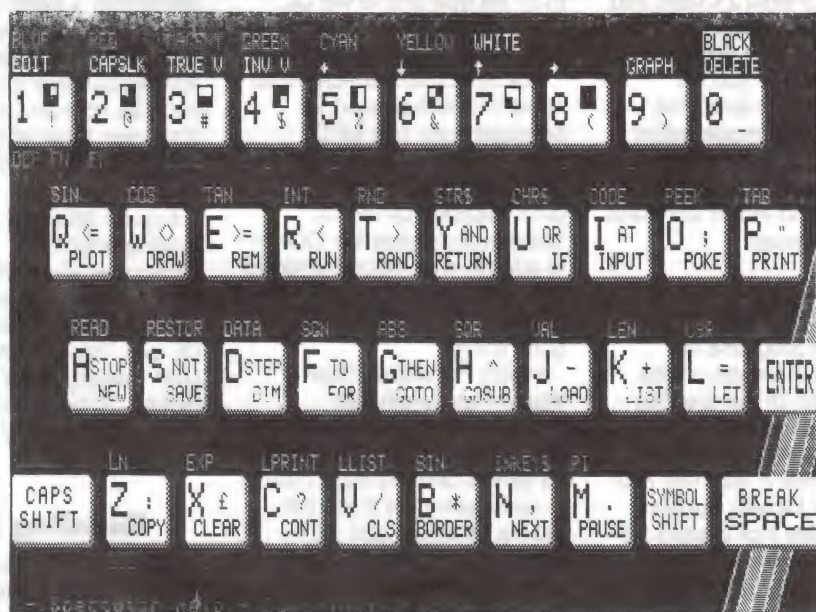
The keyboard

The Spectrum uses a grid of 40 keys to generate 249 key-codes. Depending on the keys you have previously pressed, a key may call up a Basic keyword like PRINT, a function like ABS, small or capital letters, graphics symbols or colour changes. The emulators mimic this behaviour, with tweaks to suit the QL.

Ergon do not include a keyboard display, but you can call up a menu of keywords and key-presses with Shift-F4. Type the first few letters, or scroll through the list, till you find the word you want, then press Enter or Space. The ZX screen re-appears with the keyword added at the current position.

The illustrations show Spectator's ZX keyboard help screen and the Disassembler menu from ZM/HT, typical of the many menus used by Ergon.

Speculator has a simple monochrome image of the QL keys, rather than Spectrum ones, with ZX keywords added and QL menu options round the outside.



Stats / Dump window			
Memory occupation stats:			
Code: 44586 bytes (34%)			
Memory management: 42120 +224 (32%)			
Z80 Parsed: 5334 bytes			
Z80 Codegen: 4817 bytes			
Self modifying code			

Disassembly window			
'10AF	A7	and	a
'10B0	F0CB016E	bit	5,(iy+01)
'10B4	C8	ret	z
'10B5	3A085C	ld	a,(5C08)
'10B8	F0CB01AE	res	5,(iy+01)
'10BC	F5	push	af
'10BD	F0CB026E	bit	5,(iy+02)
'10C1	C46E0D	call	nz,0D6E
'10C4	F1	pop	af
'10C5	FE20	cp	20
'10C7	3052	jr	nc,111B

Z80 monitor			
0	Disassembly ZX memory		
1	Dump ZX Memory		
2	Poke into ZX memory		
3	Alter Z80 registers		
4	Search through memory		
5	Trace instruction		
6	Repeated Trace		
7	Set repeated trace		
8	View brk settings		
9	View ZX Screen		

Emulator Status			
PC	\$10AF	SP	\$FF48
F:64=	Z	(SP)	\$15FE
A	\$00	AF	\$0066
BC	\$1721	BC	\$1720
DE	\$5CB9	DE	\$00B8
HL	\$10A8	HL	\$0038
IX	\$03D4	IY	\$5C3A
IFF	1/IM 1	I/R	\$3FB3

Alternatively Speculator offers a utility called Easy Keys, which allows keywords to be typed in full, as you would in QL Basic. The utility is fussy about spaces and requires capital letters, but it is much the fastest way to enter Basic if you are not familiar with the ZX keyword layout.

Normally the emulators read characters from the QL keyboard queue, so you can use the extra keys that do not appear on a real 48K Spectrum. Speculator expects you to press F5 to select 'Extend' mode before typing eight relatively obscure symbols in the second half of the Ascii set. Spectator and ZM systems are confused by the QL Caps Lock, and require you to use a new keystroke instead; Speculator treats Caps Lock as normal.

Most machine-code program scan the keys directly, so the emulators must trap access to the ZX key ports and substitute information from the QL's second processor. This is relatively slow, and limits access to the main 40 keys, so ZM and Spectator let you turn such 'keyrow access' on or off. Speculator supports both, with no need for manual switching.

Joysticks

Many Spectrum games are best played with a joystick, although there was no standard interface till 1987 when Amstrad took over production and changed the socket connections so third party sticks

needed a special adapter! The emulators recognise QL cursor keys and any joystick plugged into Ctrl1, but must support several competing ZX 'standards'.

Spectator lets you select joystick emulation from a menu of three common types: Protek, Kempston and the Interface 2 standard, built in to later Spectrums. Speculator can emulate Kempston and Protek hardware, but you must use the keys if your program can only cope with Interface 2. Most games offer a choice.

ZM has the most efficient but most fiddly approach. A menu lets you assign the QL's KEYROW(1) key group, comprising the Ctrl1 set as well as Esc, Enter and Backslash, to simulate any eight ZX keys. You can save these assignments with the program. If you do not set up this 'game mode' you will probably need to select the slower 'multikey' mode before games will work. Ergon plan to add preset menu options for Interface 2 and Protek standards in a future release.

Filing

Spectrum programs are delivered on cassette, unless you have one of the rare Plus Three or expanded disk systems. The emulators can read cassettes in standard and 'headerless' formats, but later tapes that use trick loaders are unreadable unless you use a genuine Spectrum to convert the file.

If you think microdrives are unreliable, you haven't tried

cassettes. Speculator comes with Dave Barker's QSPEC, a comprehensive set of QL commands to load and convert ZX tape files via the QL NET port, but loading is hit-and-miss as it depends on QL memory and tape speed.

Speculator's LOAD command can use QL drives or a tape player connected to SER2, which can in theory accept stronger signals than NET. These tape routines assume Mark 1 Trump Card memory, so I have not been able to test them.

I like the way Speculator lets you SAVE, LOAD and ERASE ZX files directly by name on QL devices. CAT "FLP2.." shows the directory of floppy drive 2, ZX files are identified by a special FTYF file type (3-8) in the QL directory, and listed by name, type, size and start address.

The Spectrum's ten-character name limit is bypassed, so Speculator can use full QL names of up to 36 characters, with an adjustable four-character prefix supplied by default. Speculator patches the ZX rom to add QL error reports, whereas the others issue the catch-all 'Tape loading error' if anything goes wrong.

Prolific PD worker Dave Walker has contributed prototype routines to read ZX microdrive files in a QL drive, but it's almost certainly more reliable to use a serial link if you still have a Spectrum and ZX Interface 1. The Speculator disk also includes serial screen conversion software, written in C by Andy Dean, and a SuperBasic program to display

the directory of Spectrum Disciple and Plus D disks and convert them to Speculator format on any QL drive.

Snapshots

The most common 'alien' format for Spectrum files is 'Z80' format, used by the eponymous PC Spectrum emulator. All the Qdos emulators can use these 'snapshots'; all bar Speculator can write them too; Speculator saves in its own 'snap' format.

Unfortunately Speculator won't let you rename files from inside the emulator, and you must return to ZX Basic to change the defaults. The other emulators present the name for editing when a snapshot is made, and let you rename files from any multi-tasking utility.

Each Z80 file holds a complete 48K memory image, plus register values a 'snapshot' of the screen, programs and data in memory at once. ZM/HT and Spectator can save disk space by storing compressed Z80 files, and ZM/HT can save compiled code as well as the Z80 original. ZM programs read compressed snaps rather slowly, and require the source disk to be write-enabled.

Upon registration Carlo Delhez supplies tasks to read Plus D, Disciple (MGT), Opus Discovery and Beta/Hobbit disk files, but Spectator does not support tape loading. The tasks are simple and convert all the files from one drive to another, specified by an EXEC parameter.

Ergon's ZM/AC accessory task is only available to registered users. It is interactive, rather than a batch task, with menus and windows galore. It's a bit clumsy as it requires two key-presses after converting each file from an Opus or MGT disk, even if the whole directory was selected from the previous menu.

Ergon's approach to tape loading is typically comprehensive and complicated. Enthusiasts can set timing constants to suit most QL ram. The emulators read from 'pseudo tapes' created by ZM/AC. These are QL files that can contain several ZX files and headers

Reading disks

Dilwyn Jones' *Multi-Discover* can be used to read Spectrum 180K disks, if you have an appropriate drive. It should also read the rarer 706K 3.5-in format,

if correctly configured, but I haven't managed that yet.

ZM/2 and Spectator also emulate the 'ZX Interface 1'. Spectator keeps SER1 open while it runs, while Ergon let you re-direct serial data to any device. Spectator and ZM/2 also support Microdrive emulation, in compatible formats. The syntax is just like the Spectrum's - precise but rather fussy.

SAVE "m";2;"FILE" stores a ZX program inside a pre-created 128K QL file called Microdrive_2. CAT 2 crashes Spectator unless the file already exists. Spectator supports up to four microdrive files (540K) on each QL drive, and defaults to RAM1 and RAM2, for the eight possible ZX microdrives.

Multi-tasking

Spectator needs *Qram* or *Qpac* to multi-task, whereas ZM has a cursor and will multi-task on any QL. Speculator takes over from SuperBasic, so you need Minerva to issue commands while it runs. You can Quit back to SuperBasic, sift through the ZX memory, and re-enter the emulator later with your program intact, using CALL A+2,B.

All the packages let you reset the Spectrum or quit the emulator at any time via an extra QL menu, called by pressing F1 (Spectator), Esc (Speculator) or Shift Tab (ZM).

The Spectrum hardware generates an interrupt, diverting the Z80 processor at the start of each display frame. All the emulators replace the default Z80 Interrupt mode 1 routine with their own fast code. In Interrupt mode 2 emulators must interpret the program's own handler, so the interrupt rate may have a big influence on emulation speed.

Spectator performs one ZX interrupt for every three QL frames, running at 18-20Hz on a QL, versus 50 Hz on a Spectrum. Speculator runs interrupts at a rate adjustable from 5 to 50 per second. ZM 2 and upwards let you set rates from 10 to 50 Hz. Sometimes a tweak here improves results, but there's little point in changing this unless the program uses interrupt

mode 2.

Performance

I've tested about 30 Spectrum programs on the emulators, using snaps made on SAM and Plus D, and most of them worked first time on each system. This is an impressive feat.

Spectator is noticeably slower than the ZM range, but the most compatible. It uses three tasks, for keyboard, screen and Z80, so it works less smoothly than the others.

Speculator runs as a single task and includes replacements for slow rom routines which make it the fastest interpreter for ZX Basic editing, but its 'Z80 engine' is still slower than Ergon's best.

ZM/HT is an incredible feat of computer science, and very usable once the compilation delays have been passed, even on a 640K machine, but you really need more ram to get the best from it. It can out-perform a real Spectrum on a 16MHz Gold Card.

Speed is not everything. Z80

hackers will be particularly attracted by the monitor in ZM/2, while 68000 fans will find lots of interest in the Speculator source files.

Summing up

The boom in Spectrum emulators can be traced back to the launch of the Gold Card, which makes it possible to run ZX software at a reasonable speed in Qdos. The emulators are ingenious and fascinating toys, but they are aimed at a limited market - you need to own a Spectrum, preferably with disk expansion, and a fast Qdos system before ZX emulation holds great appeal.

Software emulators become increasingly attractive as Qdos moves to faster processors, like the 68EC040 in Miracle's PC card. Once the issue of speed has been resolved, compatibility is the most important consideration for those wishing to run Spectrum software on Qdos; existing emulators are surprisingly good, and are sure to improve further.

If Spectrum emulation

appeals, it's easy to test the water with one of the Public Domain releases. Speculator is simplest and most complete of these; you do need to register the shareware ZM and Spectator emulators to get best use from them. The ideal choice depends on your software and hardware; ZM/HT is fastest but needs technical knowledge and experimentation for best results, while Spectator is most compatible and supports more Spectrum disk formats.

Speculator and shareware versions of Spectator and ZM are available from QL Public Domain suppliers such as SJPD and Qubbesoft. Full versions and support are available from the shareware authors:

Spectator: Carlo Delhez, Emmastraat 3, 4651 BV Steenberg, Netherlands.

ZM series emulators: Ergon Development, Via Emilio De Marchi, 2, 42100 Reggio Emilia, Italy.

SIX QDOS SPECTRUM EMULATORS COMPARED:

	SPECULATOR	SPECTATOR	ZM/1	ZM/2	ZM/3	ZM/HT
QL RAM needed	256K+	256K+	512K+	512K+	512K+	640K+
Delayed screen	N	Y	Y	Y	Y	Y
Instant screen	Y	N	N	Y	Y	Y
Multi-tasking	N	Q	Y	Y	Y	Y
Screen modes	1	2	2	2	2	2
Save config.	N	Y	N	N	N	Y
48K Snapshot save	Y	Y	N	R	R	R
Snap compression	N	Y	N	N	N	R
Screen snapshots	S	Y	S	S	S	S
Z80 monitor	N	N	N	Y	Y	N
Z80 disassembler	Y	N	Y	Y	Y	Y
DAA emulation	Y	N	Y	Y	Y	Y
Extra Z80 opcodes	N	Y	Y	Y	Y	Y
Key modes	2	2	2	3	3	3
Keyword picture	Y	Y	N	N	N	N
Keyword menu	N	N	Y	Y	Y	Y
Keywords in full	Y	N	N	N	N	N
Tape emulation	Y	N	N	R	R	R
I/F 1 (MDV/SER)	N	Y	Y	Y	N	N
I/F 2 (joystick)	N	Y	Y	Y	Y	Y
Protek Joystick	Y	Y	N	Y	Y	Y
Kempston Joystick	Y	Y	N	Y	Y	Y
MGT disk reader	Y	R	N	R	R	R
Opus disk reader	N	R	N	R	R	R
BETA/Hobbit disks	N	Y	N	N	N	N
PC .Z80 reader	Y	Y	N	Y	Y	Y
BEEP on QL NET	Y	Y	N	Y	Y	Y
BEEP on QL IPC	N	Y	N	N	N	N
Performance	C	D	D	C	B	A
Compatibility	C	A	C	B	C	B

A..D = Rank; Q = QPAC needed; R = Only if Registered; S = SuperBASIC needed.

Super

in Action

Simon Goodwin's new column tackles columns!

This new SuperBasic project was born when I built up a large database of QL disk directories, using Alan Pemberton's excellent DiskTidy utility, available from the Scottish QL Users' Group. I ended up with thousands of lines of directory information, and wanted to print it out neatly without wasting paper or deskjet ink.

I soon realised that my PAGE_PRINT program had many uses besides cataloguing disks. I changed it to print individual files, rather than DiskTidy's sequence of DIREC files; it effortlessly condensed 4,450 lines of Z80 op-code routines from 'Speculator' onto seven A4 pages. It could also pack four pages of draft text onto a single sheet of paper.

PAGE_PRINT is a simple but useful utility. It copies information from QL files to the printer, or a new file, expanding tabs, adding control codes to select an appropriate character size and packing lines into pages and columns.

Flexible

The program is very flexible, and suits all types of printer from teletypes to laser printers. It has been tested on old and new Epson printers as well as my HP DeskJet, and I shall explain how you can teach it about other types of printer.

As listed, PAGE_PRINT supports seven print formats. The first two are specifically for page-printers that accept Hewlett Packard Page Control Language - these include DeskJets and most laser printers. They are configured to put 96 or 192 characters on each line, and pages of 130 lines, giving 260 or 650 file-names per page, depending on the character-size. Even the smallest size is clearly readable, with almost 25,000 characters per page, thanks to the Deskjet's high print resolution.

Formats 4 and 5 suit relatively recent

```
1000 REMark PAGE_PRINT by Simon N Goodwin, 16th March 1993
1010 REMark Generates ASCII, Epson, HP PCL 3+, version 1.4
1020 REMark QL SuperBASIC; uses PAN #0,0,115 (SD.CURSEN)
1030 :
1040 REMark Turbo favours: IMPLICIT% i,j,k
1050 :
1060 page_length%=70
1070 column_gap%=4
1080 tab_width%=8
1090 print_device$="SER1"
1100 :
1110 PREPARE
1120 USER_INTERFACE
1130 PRINT_PAGES
1140 STOP
1150 :
2420 DEFine PROCEDURE PREPARE
2430 LOCAl i
2440 tab$=CHR$(9) : esc$=CHR$(27) : space$=CHR$(32)
2450 hpx$=esc$ & "&" : hpt$=esc$ & "(" : form_feed$=CHR$(12)
2460 print%=3
2470 disk%=4
2480 epson_init$=esc$ & "@":REMark Reset Epson to power-up state
2490 REMark LF -> CR/LF, Wrap at right margin if line overflows
2500 hp_init$=hpx$ & "s0C" & hpx$ & "k2G" & hpx$
2510 REMark Use portrait A4 paper, PC850 character set
2520 hp_init$=hp_init$ & "l26a0o12d144p01128F" & hpt$ & "(12U"
2530 LET spec_max%=32:REMark length limit for page setup strings
2540 LET title_max%=12:REMark Limiting length of printer name
2550 LET pages%=7:REMark Total number of formats
2560 LET epson%=3:REMark First Epson variant
2570 REMark Aim to be ready for anything!
2580 DIM width%(pages%),height%(pages%)
2590 DIM page_spec$(pages%,spec_max%),title$(pages%,title_max%)
2600 RESTORE 2740
2610 FOR i=1 TO pages%
2620   READ title$(i)
2630   READ temp$ : IF i<epson% : page_spec$(i)=hpt$ & temp$
2640   READ width%(i),height%(i)
2650 END FOR i
2660 REMark Control codes don't suit constant DATA
2670 page_spec$(3)=CHR$(15) & esc$ & "M"
2680 page_spec$(5)=CHR$(15) & esc$ & "3" & CHR$(18) & esc$ & "S0"
2690 page_spec$(4)=page_spec$(5) & esc$ & "M"
2700 page_spec$(6)=CHR$(15)
2710 END DEFine PREPARE
2720 :
2730 REMark Name, setup string, width, height in characters
2740 DATA "HP 1","sOp12h6v0s0b6t2Q",96,130
2750 DATA "HP 2","sOp24h6v0s0b6t2Q",192,130
2760 DATA "New Epson 1","",160,65
2770 DATA "New Epson 2","",160,130
```


Basic

Epson printers and compatibles which can print condensed 'Elite' characters, giving four columns with DiskTidy and up to 160 characters per line. My ancient Epson MX-80 has no 'Elite' fount so it needs the 'Old Epson' format 5, which uses condensed subscript text to pack 17160 characters onto each page, giving three column directories.

The dot-matrix printout is slow and less clear than the HP equivalent, but pronounced 'quite readable' by members of the West Midlands Quanta sub-group. I'm grateful to Dave Newell and Phil Spink for testing the 'New Epson' settings on their LX-86 and LX-800 printers.

Minimum codes

If your printer is incapable of subscripts PAGE_PRINT can still be useful, thanks to the last two options which reduce the need for control codes to a minimum. The 'Condensed' format 6 simply sends an Ascii 'Shift In' code - CHR\$(15) - before the formatted text. Virtually all dot-matrix printers recognise this code, which gives 132 columns on an 80-column printer, allowing three column directories.

The last, fall-back format 7 uses nothing but conventional Ascii codes, so it suits daisywheels, teletypes and other printers with fixed character shapes. You still save paper if you use this to print narrow columns, such as QL directories, as PAGE_PRINT can fit two columns onto each page.

If you have a wide-carriage printer or a small daisywheel fount (12 or 15 Characters Per Inch) you can print more than 80 characters per line, and may adjust the limit in the program DATA statements around line 2740.

For instance a Juki 6100 daisywheel can print 164 characters per line at 15 CPI. You may also need to adjust the page length, in the same DATA line, to suit the paper you are using. PAGE_PRINT ends pages with a form feed in HP formats, and uses five or ten new lines to skip perforations on fan-fold paper.

PROCEDURE PREPARE sets up four arrays, as well as various constants used later in the program. HEIGHT% and WIDTH% hold the size of each format in characters. TITLES\$ holds the format names, and PAGE_SPEC\$ the control characters sent at the start of each new page.

```
2780 DATA "Old Epson", "", 132, 130
2790 DATA "Condensed", "", 132, 65
2800 DATA "Plain ASCII", "", 80, 65
2810 :
2820 DEFine PROCedure USER_INTERFACE
2830 LOCAl t%
2840 REMark form% = CHOICES%
2850 INPUT "File name      : "; file$
2860 INPUT "Column width  : "; cols_used%
2870 INPUT "Format (1..7) : "; form%
2880 blanks%=5 * ( 1 + (form%=4 OR form%=5) )
2890 col_spacing%=cols_used% + column_gap%

2900 IF form%<epson%
2910   pr_init$=hp_init$
2920 ELSE
2930   pr_init$=epson_init$
2940 END IF
2950 page_size$=page_spec$(form%)
2960 t%=width%(form%) : REMark "JM" bodge
2970 DIM grid$(height%(form%), t%)
2980 BLANK_PAGE
2990 END DEFine USER_INTERFACE
3000 :
3010 DEFine PROCedure PRINT_PAGES
3020 PRINT_INIT
3030 page_count%=0 : row%=1 : col%=1
3040 PRINT_FILE
3050 IF row%+col%<>2 : PRINT_PAGE : REMark Do anything left
3060 CLOSE #print%
3070 CLS #0 : PRINT #0; page_count%; " page";
3080 IF page_count%<>1 : PRINT #0; "s";
3090 PRINT #0; " printed."
3100 END DEFine PRINT_PAGES
3110 :
3120 DEFine PROCedure PRINT_INIT
3130 OPEN #print%, print_device$
3140 PRINT #print%; pr_init$;
3150 PRINT #print%; page_size$;
3160 END DEFine PRINT_INIT
3170 :
3180 DEFine PROCedure PRINT_FILE
3190 OPEN_IN #disk%, file$
3200 REPEAT add_line
3210   IF EOF(#disk%) : EXIT add_line
3220   INPUT #disk%; line$;
3230   EXPAND_TABS line$
3240   BUFFER line$
3250 END REPEAT add_line
3260 CLOSE #disk%
3270 END DEFine PRINT_FILE
3280 :
```


Epson codes

Epson codes are not in the DATA but assigned later, as they include control codes which cannot be entered in constant DATA. PAGE_PRINT is quite fast even in SuperBasic, but worth compiling so you can get on with other things while the compiled task negotiates with your printer.

The main loop is in PRINT_FILE, which reads lines from your drive, expands 'tab' characters into spaces, and stores the result in a character array GRID\$ corresponding to the whole page. PROCEDURE BUFFER adds each line, calling PRINT_PAGE when the current page is full.

Once the DATA statements are set correctly PAGE_PRINT is easy to use. When RUN it asks the name of the file to be printed, the column width, and the print format. It then reads the file into memory, formats the lines, and writes pages to the print device.

Most QL users have their printer connected to SER1, but some use SER2 or add-on parallel printer ports, usually called PAR. Like Psion software, PAGE_PRINT can write to a file if you specify the device and file name instead of SER1. Later you can transfer the file to the printer with a COPY command, or SPL from Toolkit 2. The advantage of making the file is that you do not need to re-run PAGE_PRINT to obtain a second formatted printout.

Standard

The standard settings allow two columns of up to 94 characters on HP printers (format 1 and 2), up to 78 on new Epsoms (3 and 4), and up to 64 in condensed formats 5 and 6.

The assignments at the start let you configure the gap between columns - four spaces, by default - the print device (initially "SER1") and the width of Tab columns, usually eight but adjustable in editors such as Devpac and Micro-Emacs. The program expects A4 paper, with 70 lines per page. You'll have to edit the DATA as well as PAGE_LENGTH% to use shorter pages.

Next month I shall discuss more details of PAGE_PRINT, and extend the program with changes to the USER_INTERFACE procedure, adding a friendly menu and support for other paper sizes.

Write and tell us - are you finding the new SuperBasic articles helpful and informative?

```

3290 REFERENCE line$ :REMark Turbo only
3300 DEFine PROCEDURE EXPAND_TABS(t$)
3310 LOCa1 t%,f$(tab_width%)
3320 REPEAT look
3330   t% = tab$ INSTR t$
3340   IF t% = 0 OR t%=LEN(t$) : EXIT look
3350   f$=FILL$(space$,tab_width% - (t%-1) MOD tab_width%)
3360   t$=t$(1 TO t%-1) & f$ & t$(t%+1 TO)
3370 END REPEAT look
3380 END DEFine EXPAND_TABS
3390 :
3400 DEFine PROCEDURE BUFFER(line$)
3410 grid$(row%,col% TO col%+cols_used%-1)=line$
3420 row% = row% + 1
3430 IF row% > height%(form%)
3440   row%=1 :REMark Back to the top
3450   col% = col% + col_spacing%
3460   IF col%-1 > width%(form%)-cols_used%
3470     PRINT_PAGE
3480     col%=1
3490   END IF
3500 END IF
3510 END DEFine BUFFER
3520 :
3530 DEFine PROCEDURE PRINT_PAGE
3540 LOCa1 i
3550 FOR i=1 TO height%(form%)
3560   PRINT #print%;grid$(i,1 TO width%(form%))
3570 END FOR i
3580 IF form%<epson%
3590   PRINT #print%;form_feed$;
3600 ELSE
3610   REMark Skip perforation
3620   FOR i=1 TO blanks% : PRINT #print%
3630 END IF
3640 page_count%=page_count%+1
3650 BLANK_PAGE
3660 END DEFine PRINT_PAGE
3670 :
3680 DEFine PROCEDURE BLANK_PAGE
3690 LOCa1 j
3700 FOR j=1 TO height%(form%)
3710   grid$(j)=FILL$(space$,width%(form%))
3720 END FOR j
3730 END DEFine BLANK_PAGE

```

QL WORLD - SPECTRUM EMULATORS

ZX-QL! ... Simon Goodwin compares Spectrum emulators for Qdos. The ZX Spectrum was the QL's predecessor and the most successful Sinclair computer ever produced, selling millions world-wide since its launch 11 years ago. Now QL enthusiasts can benefit from the plethora of books, magazines and programs aimed at Spectrum users, thanks to emulators which run Spectrum code and BASIC on any Qdos machine.

I've tested the ZX emulators on expanded QLs with and without Gold Cards, Thor XVI, Aegis Qdos and the SF/QL. You need genuine QL hardware to read ZX tapes directly, or generate Spectrum sound, but the emulators work on all the Qdos variants I've tried, including Sinclair Roms and Minerva. There's no problem running one emulator on top of another - in fact ZX emulators benefit from the extra speed of full 68000-based machines.

Like many QL users, the Spectrum was my first Sinclair computer; I worked as Technical Editor of Crash magazine at the peak of its popularity, organised last year's ZX-92 'tenth birthday party', and have written ZX compilers, utilities and games, so I'm well placed to comment on the inner workings of the machine.

I shall compare six QL ZX emulators from three countries. At least one more exists - ZX from Russia - but its authors have yet to contact QL World with details.

The authors

The first known QL ZX emulator is Speculator, written between 1989 and 1991 by William James. This attracted interest from major names in the UK QL trade, but remained unfinished; the author moved to the Aegis, shortly before the extra speed and strong sales of Miracle's Gold Card made software Spectrum emulators commercially viable.

Meanwhile in the Netherlands Carlo Delhez completed a ZX-81 emulator for the QL, and started work on the confusingly-named Spectator. This has been updated at roughly monthly intervals since September 1991's 'version 0.10'. I tested version 1.18, of February 1993. Carlo has been a Sinclair devotee for more than a decade; in 1983 he published a ZX-81 'MultiBasic' utility!

In December 1991 the Ergon Development team picked up the torch, obtaining a Sinclair Spectrum Interface I via QITALY magazine. Their Z80 simulator was designed and written in 68000 code by Marco Ternelli, author of DEA, A menu-driven control system in Turbo compiled Basic was added by Davide Santachiera, who wrote Ergon's elegant and useful MasterBasic development package.

Once I had seen the unreleased Speculator, and shareware releases of Spectator and Ergon's ZM1 emulator, I decided to spill the beans for QL world readers, and wrote to the authors to obtain their latest versions. By the time you read this, all the programs will probably be updated, but the essential distinctions will remain.

The Deals
Speculator is in the public domain, and may be freely copied. It comes with complete source code in QL assembly language and some PD demonstrations in ZX BASIC and Z80 code. Like all the emulators, it includes a corrected copy of the ZX Rom written for Sinclair by Nine Tiles.

QUANTA AGM

The 1993 Quanta Annual General Meeting is being hosted by the Solent area sub-group during their April workshop, which is being run over two days: Saturday 24 April from 10am to 6pm, and Sunday 25 April from 10am to 5pm. The AGM itself, for Quanta members, will be on Sunday afternoon.

Trade stands, talks, a clinic desk, competitions and a bring-and-buy sale are planned. There will be tables and power points for attendees to set up their own systems, as well as car parking, refreshments and bar.

The location will be the Horizon Centre, Sundridge Close, Cosham, Portsmouth, near to the M27, A3 and ferry ports. For more information contact **Jim Wilson, 14 Winchester St, Botley, Hants SO3 2EE. Tel. 0489 782540, Graham Goodwin tel. 0489 895451, or Graham Evans tel. 0703 403350.** There is a sketch map of the location available. Our copy shows the Red Lion, Marriott Hotel, Post Office, Hilsea Lido, a hospital, and an location labelled "IBM" nearby - those should be sufficient landmarks for most travellers.

PERFECTION SPECIAL EDITION

On most word-processing issues, the best way to achieve an objective is pretty clear. But there are some areas where tastes and preferences can differ widely, says Digital Precision, so flexibility is the key.

One such area is the text reformatting - the adjustment of text to margin, indentation, justification and pagination settings when you go back (or forward) and alter existing text. When new text is being entered, all word-processors obey the current settings. But in amending existing text (inserting, changing or deleting) text-handlers differ widely in their treatment of reformatting: *Editor*, *Wordperfect*, *Quill* and *Word* all behave differently.

Editor, *Wordstar*, *Spy*, etc leave all reformatting to the user. This manual mode gives you more control, makes the handling of tables and other technical applications better, and is easier on the eye. But it is not automatic.

Quill auto-reformats, but because of speed problems it uses a trick - when you insert in the middle of a paragraph, it bisects the paragraph creating a couple of blank lines to separate the parts temporarily. This means *Quill* does not need to reformat until you have finished amending: what you type appears at the end of the part para. This is quite helpful, but the screen display is quite wrong during the editing. Also a bug can allow a line to be shown twice on the *Quill* screen while it is only really present once - you will regret it if you delete the apparent duplicate!

Word, *AmiPro* etc auto-reformat in situ, in real time, as-you-type. This means the cursor will jump about while editing (which is hard on the eye). In some implementations, the cursor moves backward as you are adding characters! It can be distracting to see the ripple effect of changes as text is reformatted.

The new Version 5 of **Perfection Special Edition** combines the best of all the methods. The user is given the opportunity either to preconfigure, or to adjust at will from inside the program, the desired auto-reformatting behaviour. The options are to either select Never (giving *Editor*-like action for technical users: this is what all previous Perfections did - you had to press a key to get the para to reformat after re-editing it), Instant (giving in-situ real-time automatic reformatting as-you-type, as does *Word*) or User-delay, the most flexible setting of all.

On User-delay the user is free to set any delay - a couple of seconds is best, and this is the default - after which the para will auto-reformat on re-editing. This means that you are not hassled by continuing screen changes on lines below the one you are editing and concentrating upon, or shufflings around on the current line caused by justification. After the delay, *Perfection SE* will tidy up automatically. On the User-delay setting *Perfection SE* will, like *Quill*, auto-reformat instantly (no

matter how long a delay you have set) if you either navigate off the line or invoke any menu or direct command (including Save, Export, etc). This means that you are never left with the document in the "wrong" state.

There are other improvements in the new release of *Perfection SE*: one in a similar area is with Shift/Caps, the reformatting option that allowed reformatting of a para from the current line onwards without affecting previous lines. Shift/Caps will now additionally obey the indent margin (which matters if the cursor is on line one of the para) and leave the cursor position unaltered within the text (previously, it used to move the cursor to the start of the next para). Other reformatting commands are unaltered.

There is no special upgrade price for *Perfection SE V5* - only DP's usual £10 including VAT and delivery. To upgrade from the standard version of *Perfection* remains the difference in price plus a £10 premium: £50 all-inclusive. In neither case should the user return any documentation, just the master disk (not the dictionary disk with *Perfection Plus (SE)*). As a special offer valid upto 31st May 1993, existing *Perfection SE* (or *Perfection Plus SE*) owners can get the upgrade free as long as they order something else at the same time, and that the total price after discounts exceeds £30.

DP have also joined the welcome move towards producing trial demos for would-be customers. The *Perfection SE* demo costs £19.95, and has saving, exporting, printing, spellchecking and dictionary-maintaining disabled, and speed slightly reduced, but everything else working. A set of large data files (which, say DP, show *Perfection*'s virtues at their best) are also supplied. Post-demo *Perfection SE* buyers can keep the data files and return disk #1 to get a £10 discount.

DP's mail order surcharges have been reshuffled to take account of the new EC VAT regulations. All UK buyers, and buyers elsewhere in the EC who are VAT-registered and supply their VAT number when ordering, pay no surcharge; non-EC Europeans add 5%; the World outside Europe adds 10%; and all other European buyers add 15%.

On another subject, Digital Precision remind us that *Media Manager Special Edition* can search through disk and file contents at high speed to trace files on a crowded computer.

Perfection SE upgrade and *Media Manager SE* are available from **Digital Precision Ltd, 222 The Avenue, Chingford, London E4 9SE.**

Digital Precision reminds QL users of their special deal prices, which give discounts of up to 25% when a number of programs are purchased or upgraded together.

HD Interface Project in PD

Happy New Year! (February 1993 ...) SJPD Software is now able to supply the following new items: a disk of demo software from Dilwyn Jones Software, including demos of *S.Edit*, *Winback 2*, *Address Book* and *Label Printer*, and *Image Processor*, and a disk of screens from *QFract*; a set of Archivers, including *Zoo*, *Zip* and *Unzip*, *QArc*, *LHx*, *Har* and *Arc*; file transfer and comms package *QeM V2.3*, which supports *X/Y/Z Modem*; *Home Finance*; and the *Elvis Text Editor*. Newer still is *QL-HD*, a hard disk interface project (disk no. SJS 48), and the latest version (3.20) of the Amiga/QL Emulator.

SJPD also has two disks of PC-compatible shareware, one of which is of interest to people who own a QL and a PC (Yes! There are a few of them out there): *QL-PC*, a program which allows you to view QL screens on a PC, and manipulate QL files on a PC. (The other PC disk is a Spectrum Emulator for the PC, which includes details of how to transfer programs from the Spectrum to a PC.) These two disks are in 3.5-in format only.

See elsewhere in *QL Scene* for the results of the SJPD/QL World competition. SJPD now has over 100 disks of QL software to choose from!

SJPD, 36 Eldwick St., Burnley, Lancs BB10 3DZ. Tel. 0282 451854.



QSPREAD REVIEW

Bryan Davies steers his way round the latest versions of a popular spreadsheets for the QL.

INFORMATION

Program: QSpread 1.07 and 1.12
Price: £54
Supplier: Software87, 33 Savemake Road, London NW3 2JU.

It may be co-incidental, but my in basket has collected quite a number of programs which run under the Pointer Environment, in recent months. The implication could be that more attention is being paid to it these days, by programmers or users, or both. Perhaps more to the point, the remaining significant software suppliers in the UK are now all selling some programs which rely on the PE. The programs themselves are coming from Germany, mostly. This is reflected in the fact that it was again necessary to do a conversion job on the supplied

the errors, but that approach certainly is not suitable for many of the QL fraternity in the UK.

QSpread comes on a single 3.5-inch double-density disk, with a well-printed and generally well-written 28-page A5 booklet. There are various places in the instructions where the translation into English is less than good, and some where the meaning is not clear. To run, QSpread needs to be started after WMAN, PTR_GEN, HOT_REXT and MENU_REXT have been loaded, and these files are all provided. A boot file handles the loading. The version reviewed here is 1.07, with some additional comments on 1.12, which arrived just after I had delivered this review, at the end. The standard QJump Config file is provided, for setting defaults. There is also a Menu Config routine, whose purpose is not explained, but which appears to perform the same operations as Config - alter

instructions, in order to be able to select the commands. The language of HIT and DO has to be learnt. These particular items from the QPac set relate to using two different mouse buttons. One statement in the instructions - "Hitting a cell with a DO..." - might lead to confusion, as it appears to be contradictory. For my money, it would be far better to refer to the mouse buttons as what they are - left and right. A Hit is the equivalent of clicking the left mouse button or pressing the Space bar, and a Do is equivalent to clicking the right mouse button or pressing Enter. It is unfortunate that instructions with PE-based programs do not include prominent and sufficient explanation of PE nomenclature to assist an uninitiated user, but it is understandable that the writer of an application program does not feel he should have to explain the front-end to the operating system as well as his own program.

As always, it helps to have a mouse connected, but it is not essential. Much of the time, you can press a key to select menu items. F1 is the Help key, as one would expect; F2, F3 and F4 are all for selecting commands. While this convention does enable file commands to be separated from commands relating to the on-screen spreadsheet operations, it is non-standard, as are the remaining Function keys, F6, F9

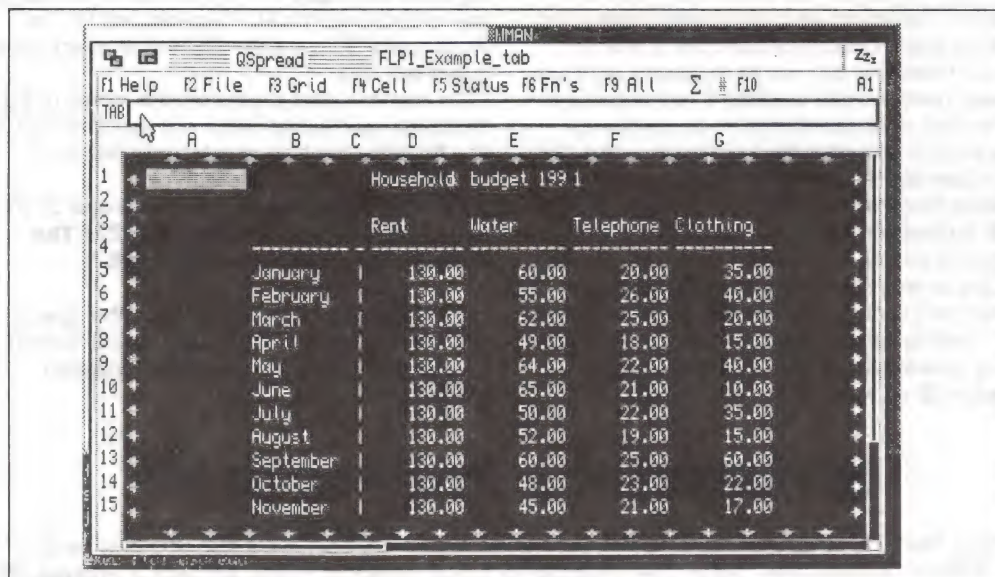
loading of an existing file; the first illustration shows a file loaded. This file was created by following an example section in the instructions. The same file is provided on the program disk.

Exporting

It is fairly likely that purchasers of QSpread will be familiar with Abacus and may want to use existing files created with that program. To do this, it is first necessary to save the files from Abacus with the Export command, then load the .EXP files into QSpread. The process is far from being simple, though. You are told - at some length - how to create the .EXP file, as it is not satisfactory to simply select the Export command. The QSpread Import command cannot handle the .EXP file directly, and you are instructed to select the default import filter, before specifying the file to be imported. The writer of the instructions states that the reason for this is that the .ABA file format for Abacus "is not documented by Psion" and it is hoped the file-transfer procedure will be improved.

A SuperBasic routine is provided to create a Hotkey for automating the creation of the special .EXP file. Presumably, this works only within the full QPac environment, as the keying (Alt-Q) did not have any noticeable effect on the review system. Attempts to load a small .EXP file, created as instructed, resulted in QSpread locking up or the message "not found" being displayed. The same file was Imported by Abacus successfully.

Spreadsheet programs usually have a fair amount in common, and this is true of QSpread. Anyone familiar with another spreadsheet program should be able to use this one, once having read the instructions through. For Abacus users, there may be surprises at various points, such as not being able to move all through the cell range by holding the cursor keys down. Single presses of the keys do not move the pointer from cell to cell; the keys have to be held down while the pointer makes its way between the cell boundaries on the screen. It is apparently a limitation of the PE that it is necessary to press the Space Bar to open-up additional rows or columns, one by one, when the pointer reaches the edge of the screen. Alternatively, you can use Alt-up/down/left/right to scroll the display one row/column at a time, or Shift-Alt-up/down/left/right to scroll it several rows/columns at a time. An edit line is used,



The screenshot shows the QSpread application window with the title bar 'QSpread FLP1_Example_tab'. The menu bar includes 'F1 Help', 'F2 File', 'F3 Grid', 'F4 Cell', 'F5 Status', 'F6 Fn's', 'F9 All', 'Σ # F10', and 'A1'. The spreadsheet grid has columns A through G and rows 1 through 15. The data is as follows:

	A	B	C	D	E	F	G
1	Household budget 1991						
2							
3							
4				Rent	Water	Telephone	Clothing
5		January	1	130.00	60.00	20.00	35.00
6		February	1	130.00	55.00	26.00	40.00
7		March	1	130.00	62.00	25.00	20.00
8		April	1	130.00	49.00	18.00	15.00
9		May	1	130.00	64.00	22.00	40.00
10		June	1	130.00	65.00	21.00	10.00
11		July	1	130.00	50.00	22.00	35.00
12		August	1	130.00	52.00	19.00	15.00
13		September	1	130.00	60.00	25.00	60.00
14		October	1	130.00	48.00	23.00	22.00
15		November	1	130.00	45.00	21.00	17.00

disk files, since the files with the names you would expect to be using were the German-language versions; the English file names had to be changed, after a working copy had been made. It seems to be assumed that anyone buying PE programs is a tinkerer, and will have no difficulty detecting what is wrong and fixing

screen colours, set the default file directory, etc.

Hit or Do?

Booting-up is a quick operation. QPac users will know where they are when the initial screen appears, as layout will be familiar to them. Anyone new to the PE will need to do some reading of the

and F10 are listed on the main menu bar, and they are obtained by holding down Shift and pressing F1, F4 and F5 respectively (I found no reference to this in the instructions), but F10 is not used. Some menu options are obtainable from key combinations, and the latter are marked on the menus. The screen is initially largely blank, ready for input of data to cell A1, or for

displaying the entered characters below the main menu bar. If you have been making a series of entries along, say, one row, making use of the feature provided for marking a block of cells, you need to make sure that the cell into which you think you are entering data is actually the active one, by clicking the left mouse button (or pressing Space) when the pointer is over the cell. Otherwise, you are likely to enter (incorrect) data into the last cell you were working with. That is, the pointer and the cell box that moves with it indicate the point where you intend to take the next action, whereas the active cell is indicated by being filled in green. The extra pressing or clicking slows down data entry appreciably.

In use

The default size of the spreadsheet is 20 rows by 20 columns. The size can be increased, with the aid of the (separate) Config routine. The instructions imply that the default size is set low because of the memory WMAN (the QPac window manager) uses to track cell contents. Re-calculation is said to be slower than with Abacus, because of the requirement to provide WMAN with screen-update information (which may never be used).

The entry of text is prefaced by " (Shift+); numerical values can be typed-in directly. To enter formulae, the Tab key has to be pressed first, unless the formula begins with a numeric character, or a minus sign or decimal point. Both absolute and relative cell references can be used in formulae. Inserting or deleting rows or columns will currently upset relative references; presumably, it is the intention to fix this in some future version.

At one point during the creation of the example spreadsheet, about half the screen became corrupted, apparently with part of a file being written onto the screen, but the display gradually cleaned up, as more data was entered, and there was no evident lasting ill-effect

Printing

The default printing device was the Hewlett-Packard DeskJet 500, the page length 60 lines, and the default port PAR - not exactly the obvious choices. Alternative printer-drivers are offered through the F2-Change Printer Options menu option, the supplied drivers being for the IBM Proprinter X24

	Rent	Water	Telephone	Clothing	Food	Heating	Petrol
January	130.00	60.00	20.00	35.00	100.00	60.00	25.00
February	130.00	55.00	26.00	40.00	80.00	40.00	30.00
March	130.00	62.00	25.00	20.00	95.00	25.00	28.00
April	130.00	49.00	18.00	15.00	86.00	0.00	24.00
May	130.00	64.00	22.00	40.00	65.00	0.00	32.00
June	130.00	65.00	21.00	10.00	120.00	0.00	22.00
July	130.00	50.00	22.00	35.00	40.00	0.00	39.00
August	130.00	52.00	19.00	15.00	50.00	0.00	40.00
September	130.00	60.00	25.00	60.00	20.00	20.00	42.00
October	130.00	48.00	23.00	22.00	85.00	46.00	33.00
November	130.00	45.00	21.00	17.00	75.00	50.00	20.00
December	130.00	48.00	22.20	30.00	87.00	45.00	25.00
	1560.00	658.00	264.20	339.00	903.00	286.00	360.00

(which might work for the Canon and Brother BubbleJet printers), Epson LQ-800, Star LC24-10, and for plain Ascii text. The LQ-800 driver worked with my Epson GQ-5000 laser printer, when it was set to LQ-2500 emulation mode. Requesting a print of the current screen page produced two pages, with the text starting well down the first one. The program considers the current cell to be the start of the required page, and I had interpreted the position of the pointer (and cell outline) to be the current cell, which is not necessarily the case (see comments below). The required cell has to be marked, by pressing the Space Bar, and the print was satisfactory when this was done. Marking all the cells on the screen and selecting a print of the marked area also produced a proper print. The £ sign came out as ' (see second illustration). As with Abacus, you have to create top and left print margins by means of a blank row and column. The drivers provide the basic necessities, and a few additional commands can be added via the Change Printer Options menu; for example, lsmall is typed-in to obtain condensed print

Functions

Many people will use a spreadsheet program in a very simple way, perhaps never using even one formula. There is nothing wrong in this, but it is desirable that a program provides a good range of functions for the user who has more ambitious projects in mind. QSpread offers the following:

+	add
subtract	
*	multiply
/	divide
^	raise to the power
()	calculation level (up to 16)
c	cell reference
x	a number or cell reference
r	cell range (entered in form A1:J1)
abs(x)	absolute value
cos(x)	cosine
sin(x)	sine
tan(x)	tangent
cot(x)	cotangent
asin(x)	arcsine
acos(x)	arccosine
atan(x)	arctangent
acot(x)	arccotangent
sqrt(x)	square root
ln(x)	logarithm (natural)
log(x)	logarithm (base 10)
exp(x)	exponent
col()	number of column containing current cell
row()	number of row containing current cell
sum(r)	sum of values in range r (entered in form A1:J1)
avg(r)	average of range r (=sum(r)/cnta(r))
width(r)	width of columns over range r
len(c)	length of text in cell c
cnta(r)	count of all cells in range r
cnt(r)	count of all cells <>0 in range r
rept\$(a,x)	repeat character 'a' x times

month\$(x) name of month x (1=January)
day\$(x) name of day x (1=monday)

Version 1.12

When I was checking version 1.12 I used the SERmouse driver from Albin Hessler Software. This made operations much easier, giving an overall better feel to the program. The instructions now run to 43 sides (previously 28), giving more information on the program and making reference to use with a hard disk drive. The specific English files are now mentioned. There are Sum and Line functions available on the main menu bar; when a Block has been marked, existing numeric data can be summed in a particular cell by clicking on the Sum icon and, likewise, a dashed line can be placed in marked cells (as a divider/undivider) by clicking on the Line icon. F10 on the menu bar is active and provides a Go To function. Clicking on the vertical or horizontal scroll bars (lines of arrows) enables either the next row/column or the next block of rows/columns to be displayed. Narrow bars beyond the scroll bars are used for jumping to the extreme edges of the worksheet, and for splitting it into sections.

Conclusion

Version 1.12 and its instructions are a significant improvement over 1.07. Using a mouse makes life with QSpread much easier (it is, after all, a Pointer Environment program). You still have the keyboard navigation limitations imposed by the PE, and the memory limitations of Window Manager (maximum number of cells 32768, default number 400, because of memory use), but that does not appear to be the fault of QSpread. To get the best out of the program, operation needs to be two-handed - one for the mouse, one for the keyboard - and this will be the normal mode for anyone already using the PE. QSpread should satisfy the needs of most QL spreadsheet users, and is an obvious choice for anyone already having a mouse and using (or wanting to switch to) the Pointer Environment.

For users who wish to have all their application programs making use of Pointer Environment features, QSpread is perhaps the obvious choice of spreadsheet program. Those users who are looking for something better than Abacus may find some features in QSpread which are helpful but, overall, the two programs do the same job and offer the same functions, and Abacus is less cumbersome to use. In terms of compatibility, Abacus also scores, as it was clearly modelled on Lotus 1-2-3, which is the industry standard. There are some nice touches in the program, but it would require much more time than was available for this review to become familiar with all the command mechanisms; it is not what one would call an intuitive program. As I have said, the newest version does make up ground in this direction.

**Henry Orlowski
compares his
figures and
customises the
graph. Load up and
join in.**

Easy with Easel

Part 3

Last month we created our first special graph for a set of data responses to a market research project. We completed one graph for the boys' part of the exercise, now we have to do the same for the girls. Once we've done that we can look at some of the other options within Easel to customise our graphs and charts to our hearts' content and provide that special and personal look and feel.

The first thing to do is to load up the file we saved last month with the boys' information in it. You may wonder what the point of this is if we are now going to create a new set for the girls. You can of course start from scratch, but we are going to take the more efficient course of using the basic layout that we've already set up for the boys. You will then remark how quickly the girls' chart has been created compared to the boys' last month.

With *Easel* loaded, select L for Load from the command menu. When asked for the filename, enter 'meals', or whatever you saved it as last month. Don't forget the drive specifier if you need it. If you've forgotten the filename, then from within the Load command you have the option of requesting a directory of the device you specify. This should enable you to locate the file easily. As in *Quill*, when loading or saving you don't need the filename extension, .grf in Easel's case.

Newdata

You should now have the boys' graph on display. To create a new set of figures on a new graph we need to use the N for Newdata command. This tells Easel to expect a new set of figures, and gives a new graph to slot them into. At the prompt, key in the new name of the new set of figures. Let's retain our totally unsubtle naming technique and call it

'girls'. Press Enter and there you have your new graph with the current name displayed as 'girls' in the status area. The boys haven't been lost - we are going to retrieve them later.

Notice however that all that work you did last month to change the text, axes, cells and labels, has been carried over to this new graph for the girls. All you have to do now - almost - is enter the new values for the girls.

Referring back to our original table, these values are 6,4,3 and 2, the number of responses to the choices offered. Enter these figures. I'm not going to tell you which keys to press, I assume you have remembered that - if not then just read last month's article again. Notice that the bars are a different colour. Use V for View to get rid of the unwanted extra cells, specifying 'girls' in place of 'all figures' this time, but still accepting the format suggestion. Again all this will be explained in more detail later on. Don't worry about it for now.

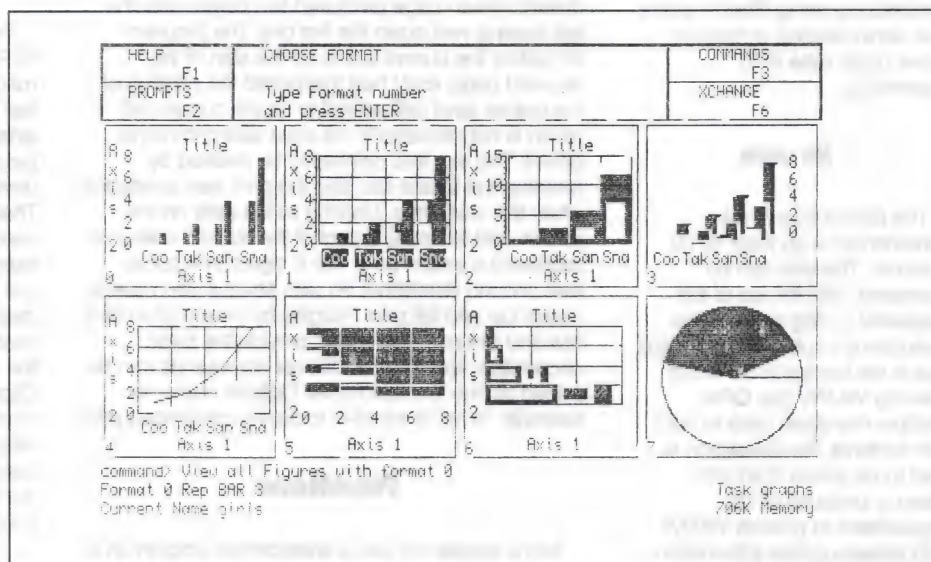
There you have your new graph, created in a fraction of the time the boys' took starting from scratch. Only one minor thing now wants changing. You will have noticed that we have the text 'BOYS' in the top left hand corner, a throwback to the previous graph, and one of the settings that got carried over. But this won't worry us because we saw last month what an easy matter it is to change the text, so use the Edit command to

change it from 'BOYS' to 'GIRLS'.

Switching data

Your graph is now correctly presented. The only trouble is that you can only see one set of

To illustrate this, let's create a fictitious set of figures called 'Martians'. Use N for Newdata and quickly enter some values. We now have three sets in memory, but we don't really want to display 'Martians' because we



figures at a time. So if you want to see the 'boys' you have to use the V for View command. When it suggests its default, 'all figures', change this to 'boys', because that's what we called the boys' graph, and just accept Easel's format option (more on this later), and you get the boys' graph on screen. 'Boys' then becomes the current set of figures. Only trouble is, you will have noticed, that 'GIRLS' remains the text. Unfortunately this is one of the settings that remains, so we have to live with it for the time being.

Another way to make a particular set of figures the current set is to use the O for Olddata command. Try it for boys and girls. There is a difference between the use of Olddata and View. Olddata will only make one set of figures the current set, whereas View enables you to see one or more sets at the same time if you specify the sets separated by commas. This is useful if you have several sets in memory but only want to display a proportion of them.

have a suspicion that it is a fictitious set, so we use the V for View, 'boys', 'girls' and we only get boys and girls displayed together.

Now if there is a set of figures that you didn't really want to clutter up your memory, like 'Martians', and you wanted to get rid of it, use the K for Kill command to delete it. Make sure you specify 'Martians' because the default is the current set which is what you get, or lose, if you just hit Enter. You also have the option of specifying two or three sets of figures if required, though not in this case, or even 'all figures' if you're desperate. More on this next month.

Variations

Now you know it is possible to see more than one set of figures together on screen at the same time. A straightforward way to do this is to use the V for View command again, but this time accepting its default, 'all figures', as well as the format

option. The display will be redrawn again with both sets of figures on screen, with two bars occupying each cell instead of one. The bars within each cell are of different colours and there is a key denoting which colour represents the boys and which the girls.

However, there will still be the 'boys' or 'girls' text in the top left hand side of the display, so, as this is no longer applicable, delete it now. You may want to replace it if you go back to viewing single sets of figures in future.

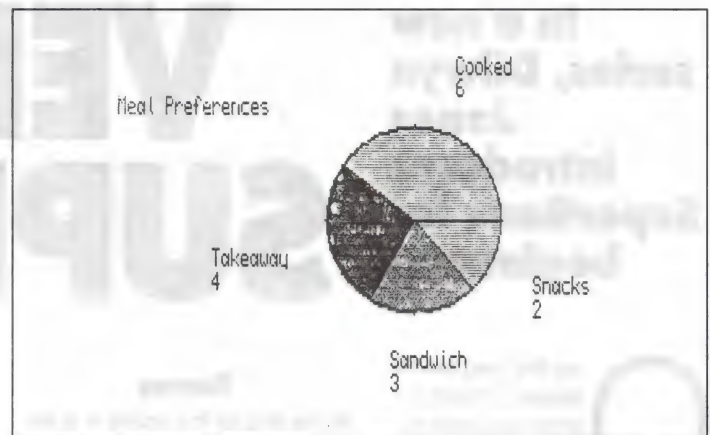
You may also find that the key is hiding part of the bars, or you simply don't like the position of it. Let's move it. To do this, use the Edit command but with K for Key. This gives the option of either deleting the key or moving it to a new position. Use the cursor keys to move the outline offered until you are happy with the new position, and press Enter.

key that Easel draws for you.

Additions

Say we suddenly realise we've made a mistake. We've forgotten to include a meal type - some of the boys and girls have a Traditional Ethnic meal which they heat up at school. How do we put this in? By inserting a new cell. Make 'boys' the current figures (using Olddata, if you've forgotten), position the crosswires over the Sandwich cell and press F5. You will see a gap open up to the right of 'Sandwich'. Enter a value of 2 and key in the Cell label, say 'Ethnic'. Go to the 'girls' and do the same.

Our graph is now almost complete but we realise we've made a mistake in our addition and our boys' values are down by 1 throughout. In other words, 5 should have been 6, and so on. Since Easel is capable of



good example of this would be in a situation where there was already in existence a set for 'Sales' and a set for 'Costs'. The new set could be created with the formula 'Profit = Sales - Costs', with 'profit' becoming the new set.

Other types

Now let's customise our graph further. Remember I've been

telling you to accept the format default during the View command sequence. Now we're going to look the other graph styles accessible in Easel. Make just one set of figures the current set. It doesn't matter which. Use the View or Change commands. If using Change,

select the F for Format option. When Easel asks which format number, accept the ? offered. You will then see on screen a representation of all eight formats possible.

The following may vary depending on the version of Easel you have but is roughly this. The first three are vertical bar charts. Number 0 displays sets side by side, 1 displays sets overlapping, and 2 displays stacked bars. 3 displays a line graph. 4, 5 and 6 are horizontal bars. 4 displays sets side by side, 5 displays sets overlapping, and 6 displays stacked bars. Number 7 is a pie chart which only works for one set of figures at a time.

Choice is largely a matter of personal preference within a

particular application. Try out each of the formats and judge which one has the best impact for you.

Now before we go any further, let's save our work with the changes we've done since last month. Use the S for Save command to do this and specify or accept the filename, 'meals'.

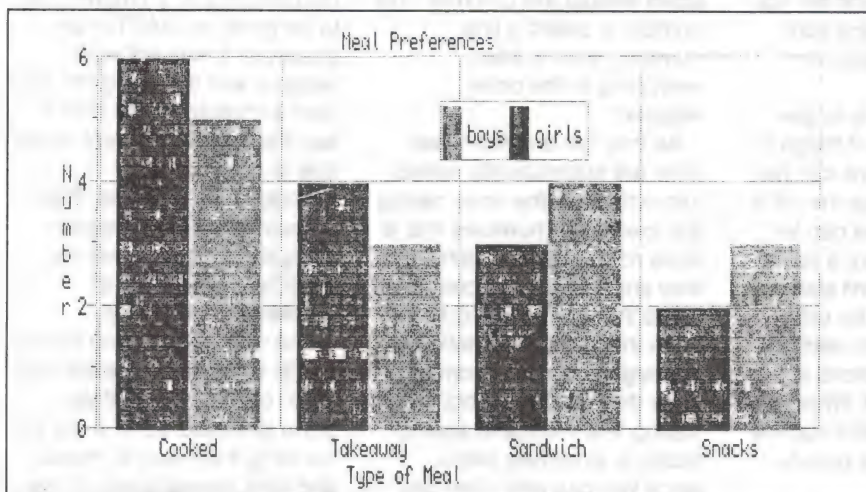
Before we pull the plug, we'll do a printout, assuming that you have a printer. Display a graph on screen in the format that you like. Make sure your printer is connected. Use the P for Print command, then P to print out again unless you have a plotter, in which case you press the appropriate letter as directed on screen. Alternatively, if you have no printer set up, you can press S for Screen Dump which saves a copy of the screen to a file for subsequent use. Note that this only saves the particular screen display, not the set or sets of figures. The Screen Dump takes up a lot of memory room, so if you're using mdvs it's better to have a blank formatted one ready. You can prepare one from within the F for Files menu in Easel if required.

Slow print

Your graph will print out. Don't worry if it all seems a bit slow. Graphic printouts are always much slower than text printouts because the information exchange is on a much more detailed scale.

Keep on experimenting. When you've finished use Q for Quit to return to Superbasic.

The customising we've examined so far has not exhausted the possibilities. Next month we will examine how we can effect some more design changes to our bars, lines, formats, backgrounds and text.



Note however that if you had selected the delete key option and subsequently wanted to retrieve the text, then all is not lost. Simply use the Edit key command again and when offered the outline position just accept the position or do so when satisfied, and the key will be redrawn in that position.

Remember that although we only have two sets of figures, boys and girls, in memory, it is entirely possible to have as many as you want, the only practical limits being a) memory size and b) your ability to remember them all and their names. If you have more than two sets of figures and forget their names then one possible way out is to View all figures then note them down from the

handling formulae - that is, arithmetical equations within the layout - the easiest way to make our modifications is to enter, directly in input mode, the formula 'boys = boys + 1'. Do it, but don't use the quote marks. Easel recognises that you're not entering text or a value, and assumes correctly that 'boys' is a set of figures. Your boys' graph, current figures or not, is redrawn with the new incremented value. Now let's get back to our original - we must have suddenly realised it was right after all. Use 'boys = boys - 1'. Back from the future.

The above is of most use of course in systems where there is a direct relationship between two sets of figures which can be used to generate a third set. A

**In a new
series, Dilwyn
Jones
introduces
SuperBasic for
beginners.**

VERY BASIC SUPER BASIC

Over the next few issues I intend to show you how to program your QL in SuperBasic from the very beginning. I will assume no knowledge of programming whatsoever. No special programs or add on devices will be needed, all you need to be able to do is to plug in the QL and switch it on as described in the "Introduction" part of the QL manual.

I will attempt to avoid jargon wherever possible, but where it cannot be avoided, I will try to explain clearly what terms mean.

The advantage of taking the trouble to learn "jargon" is that you then know what the words mean and increase your vocabulary and understanding. When trying to discuss a problem with someone else, it is easier to describe the problem if you can use the terms everyone knows. For instance, if you didn't know what "catching a bus" meant, it could be highly inconvenient trying to discover how and where to arrest a large red vehicles so that you could get on board it. The first thing you would do is ask someone "what are those things called?" Likewise with computing terms. Most of them mean something. There is nothing worse, when trying to help someone, than not knowing what he or she is trying to communicate to you!

This first article shows how to type in a simple program and explains the general use of the keyboard and simple commands used when typing in, changing or removing a program. In later articles, I will introduce the "commands" and "functions" (the words the QL understands) which make up SuperBasic.

Terms

At the end of this article is a list of terms and QL words used. Read it before you go any further. Read it again after reading the remainder of this article.

There are two ways in which you can tell the computer to do something. The first is by giving it a "direct command" (an instruction to do something immediately). This is fine for short, simple tasks such as adding two numbers, but quickly becomes tedious and difficult for tasks which are not so simple (like running your central heating system, for instance).

The second way is to give the computer a list of things to do. These instructions can be carried out later once the list is complete, so that we can tell the computer: "Here's a list of things to do, but don't start doing things in the list until someone tells you to start".

This list of instructions is called a PROGRAM. When you see a program printed out, it is called a list or, more usually, LISTING.

A program consists of a very detailed list of instructions telling the computer (in one of its own languages) how to do something. To see how detailed it has to be, try writing a detailed account of how to make a cup of tea. Include every little step - going to fetch a spoon, cup, tea, milk and sugar, opening the cupboard, walking over to the kettle, unplugging it, removing the lid, filling with water, replacing the lid, switching on, and so on. All perfectly obvious to all of us, but a computer knows nothing - it would have to be told to do the task by describing each tiny step in turn.

If you omit the smallest step, such as switching on the power, or forgetting one of the ingredients, you get no hot

drink or the end result is not what was intended! This would be described as a BUG (or ERROR) in a program.

Programs

On a QL, a program is a list of instructions, neatly laid out in LINES (computer sentences), which consist of one or more QL KEYWORDS. Each sentence, or line, starts with a number, which can be from 1 to 32,767 (such numbers would actually have to be typed without the comma). This number is called a line number, helps to keep everything in the order required.

As they are entered, these lines are automatically sorted into order with the ones having the lowest line numbers first. It does not matter in which order they are entered; the computer reads the numbers and sorts them into order automatically. Although you would normally enter them in the correct order, having this automatic sorting facility is extremely useful, since you can add other bits later, make alterations, or write the program in small parts and enter these parts one at a time as they are written. The program should appear in the correct order as long as you used the correct line numbers to start each line.

Here is a very short example program (Figure one). There are two line numbers, 1 and 2, the first followed by a CLS (which stands for CLear Screen) and the second by a PRINT command. These commands will be discussed later, but basically PRINT just writes the text that appears after it, on the screen, while CLS clears a part of the screen (normally the red part, if you have just switched on or reset the QL).

Typing in

Obviously, you should have the QL switched on and ready to go. Press F1 or F2 after the screen has settled, as described in the QL manual. It is best to type in these early examples on a 'clean' QL (one which has just been reset or switched on).

There should now be a flashing rectangle near the bottom of the screen. This is the CURSOR. Anything you type in will appear where the cursor is. Remember that a program has to be typed in EXACTLY as shown, or it may not work properly and the computer may print a message of its own to say that something went wrong (this is called an Error Message). For example, PRINT 6 would have to be typed in using the number 6, not the word "six", or all sorts of problems might occur!

The typing action you should use is short 'taps' on each key (often called 'hitting'). If you press and hold down a key for too long, it will start to 'repeat' and print several times on the screen. If you get into problems with runaway repeats, there is a special key you can use to "break out" of the problem and start again. It is called (surprise, surprise!) BREAK, although it is not labelled on the keyboard.

To use Break, hold down the CTRL key (near the bottom left of the keyboard), keep it pressed, and give the SPACE bar a quick tap. Then let go of the Ctrl key again. You will find that the computer abandoned what you were doing and printed the message Not Complete on the screen. The cursor will have gone back to the left of the screen ready for you to start that bit again.

Type in the number 1, for the first line. Then press Space again. This is not essential, but putting a gap between the

number and what follows helps to make it clearer and neater. Now type in the letters CLS. It does not matter if you use capital letters or lower case letters - this time the computer will understand either of them.

To get capital letters, either press the key labelled CAPS LOCK - each key will then give capitals until you press Capslock again - or hold down one of the SHIFT keys while you hit the letter key (like a typewriter).

That was the first line. Enter it into the "program" or "list" by pressing the ENTER key. Now you see why that key has that name. Provided it was typed in correctly, the line should now jump up towards the top of the screen, which indicates it has been accepted as part of the program and the cursor will return to the left of the screen ready for you to type in the next line.

Bad line?

If the computer prints a complaint such as 'Bad Line' and refuses to pass the line up to the program at the top of the screen, it means you have made a serious mistake and not entered the line correctly. Maybe it did not start with a number; had spaces between the letters C,L and S; or you used a symbol by mistake. You had better abandon that effort for now using Break as described above and start again.

Now we can enter the second line. Type in 2, followed by a space, then type in the word PRINT, then another space, then 6.

The line should look like this:

```
2 PRINT 6
```

Now press Enter and you will see both lines entered in a listing near the top of the screen. You may have noticed that if you typed it in using lower case letters ("cls" and "print" instead of CLS and PRINT) that the computer has converted those words into upper case letters. This is quite normal, it prefers to remember some words in upper case and it will also help you later when you come to write larger programs. By now the listing will (or should) look like the one

in Figure one.

If you notice while typing in that you have made a mistake such as mis-spelling a word, or missing out an essential space, you can correct it before you press the Enter key.

Some computers have a DELETE key which allows you to rub out an error. The QL also has one, but it is not shown on the keyboard since it needs two keys to be pressed.

To erase a single character, hold down the Ctrl key and hit the left arrow key (the four keys with arrows on them are called CURSOR KEYS - use the one facing towards the left) then let go of the Ctrl key. Provided you tap the left arrow quite quickly, only one character will be deleted. If you press the left arrow key for too long, several characters or even the whole line may be accidentally deleted as the key "repeats". After the character concerned has been erased, simply type in the correct character and press Enter when you think that the line is correct.

Deleting

If the error is quite far back in a line, it might be tedious to have to delete most of the line and re-type it all again. To delete characters in the middle of a line, use the arrow keys (by themselves) to move the flashing cursor to the position just to the right of the incorrect character. For example, if you had typed 1 XLS and wished to correct the X to a C, move the flashing cursor until it is just on top of the L. Then, when you use Ctrl-left arrow key together, the X, one step to the left, will be deleted. Then type the C in its place. If the line is now ready to be entered, press Enter. You do not have to move the flashing red cursor back to the end of the line before pressing Enter.

You can use the Ctrl and right arrow keys to delete characters in a slightly different way. Ctrl and left arrow key delete a character just to the left of the cursor, but Ctrl and right arrow keys delete a character which is actually under the cursor. It is not possible to delete a character to the right of the cursor. You have to move to the right of the error!

If you spotted a mistake after

pressing Enter, do not despair. The easiest way with short lines is to re-type the entire line and enter it again. The computer will automatically delete the old line and insert the new one, provided that you start the line with the same number. Try this and see what happens. If a line of SuperBasic is typed in, and there is already a line starting with the same number, the new line replaces the old one which is cancelled. So make sure you use the correct line number.

RUN!

Having finally entered the two lines, our program is now complete and we are ready to operate it, or RUN it. RUN tells the computer to start the program. If we just enter the word RUN the computer will try to start the program at the first line it finds.

It is vital that spaces are used where required. If you entered RUN2 with no space before the 2, the computer would complain since it would think you wanted to use a word RUN2 instead of RUN from line 2. It does not know a word 'RUN2', so it has to complain! Spaces are usually very important at the end of words (except at the end of a line), since a QL normally locates the end of a word by finding the space, or in some cases punctuation symbols.

So type in RUN, then press Enter. The program should clear a part of the screen and print the number 6 there.

Congratulations! You have just typed in and successfully run a computer program. If this is your first Basic program, you may feel a slight sense of achievement. I did when I ran my first Basic program years ago. This is one of the simplest programs possible, but even so, it is still a program.

What happens now if we wish to make changes to the program, or type in a new program? We can remove this program by using the NEW command. If you type in NEW and press Enter, the computer will remove the old program. It is a very drastic command! It does not ask you to confirm if you wish to delete the entire program or not, and it is not possible to recover the program. It is lost for good - so

use the NEW command with great care!

EDITing

You can also use the EDIT command to make changes to the program. To change line 2, type the command EDIT 2 (remember to press Enter). The line now jumps down to the bottom of the screen with the flashing red cursor placed at the end of it. Using the cursor keys, move the cursor to where you want to make a change, delete any characters not required, and type in the changes. Now press Enter and the line will be replaced in the program. If you did not change the line number, it will overwrite the old version (which is usually what you want). If you change the line number, it will be put in a new place in the listing. This feature is very useful if you need to type in two almost identical long lines of a program. Use the EDIT command to edit a copy of the first, change the line number, and make any other changes you want, and then press Enter.

The EDIT command has another trick up its sleeve. If you have started to use it to change line 2, instead of pressing Enter to put the line back in the listing, press the 'cursor arrow up' or 'down' key. These now signal to the computer that after finishing with this line and placing it back in the listing, we wish to edit either the next line up or next line down.

Any line brought down in this way can be edited as normal. Editing can be finished either by pressing Enter, in which case the line is put back in its amended form, or, if you have changed your mind, press Break (Ctrl-Space as mentioned above), and the line being edited will be abandoned and the computer will print the message 'Not complete'. In this case, the original copy of the line remains in the program - this is an easy method of aborting a change if you realise you have made too many mistakes while altering a line, or change your mind for some other reason.

Homework

To build on what you have learned in this article, study some examples in the *QL User Guide* and try typing those in and running them - keep to simple ones at this stage. Once you have typed them in, try making changes to them, changing what is printed and so on. It is surprising how much you can learn in this way!

In the next article I will begin to explain some of the commands in QL SuperBasic and give more examples. Read through what has been explained here and read the same subjects in the QL manual until you are quite sure you understand these first principles.

Glossary

SUPERBASIC. A version of a computer language called 'Basic' (which stands for Beginners All-Purpose Symbolic Instruction Code). The QL version of Basic is more advanced than some older

versions, and is also quite easy to learn by comparison with the version of Basic found on other computers.

COMPUTER LANGUAGE.

Words and symbols automatically understood by the computer, because of the way it is built. We use them to tell the computer what and how to do things.

KEYWORDS. The words understood by a computer in its own language. Examples in this article are PRINT, NEW and EDIT. The QL can be taught to understand more 'words' than are built into it, though this is a more advanced subject.

PROGRAM. When you tell the computer to do a series of things in a given order this can be done by giving the computer a list of instructions to do when told to start. This "list of instructions" is called a PROGRAM. Compare with a cooking recipe, or a sheet of instructions for building a piece of furniture.

BUGS. Errors in a computer program. Compare with missing screws or missing part of instructions sheet when

assembling some furniture. Very common source of problems for programmers and users!

PROGRAMMING. The act of designing, typing in and getting a computer program to work. Usually involves breaking a task down into very simple steps and describing it in detail - first to yourself, then to the computer.

COMMAND. An instruction to the computer to do something, such as write something on the screen. A single line of a computer program, maybe just a single keyword, eg CLS (Clear Screen).

BREAK. A pair of keys (CTRL and SPACE bar) pressed to halt a Basic program or "break" into a Basic program. Some other micros were fitted with "Break" keys which could be operated accidentally, causing their users to jam them with sticky tape! It's difficult to "Break" accidentally on a QL

CURSOR. A flashing rectangle of light on the screen which shows where anything typed will appear. Your guide around the QL's screen.

CURSOR KEYS. Four keys

on the bottom of the QL keyboard with little arrows drawn on them. Used to move the cursor and when making changes to something entered.

ERROR MESSAGE. Also known as an ERROR REPORT. A short message printed on the screen to indicate that the computer has spotted a mistake.

Some QL Keywords as used in this article:

CLS. Instructs the QL to clear a part of the screen.

PRINT. Instructs the computer to write something to the screen.

NEW. Erases the program currently in the QL. Use with care!

EDIT (plus a line number)
Calls down a line so that you can type changes.

Figure one - a short example program

1 CLS
2 PRINT 6

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FTIDY 128

Rich Mellor runs an economical file-handling utility - something 128 users often feel the need of.

INFORMATION

Program: Ftidy 128

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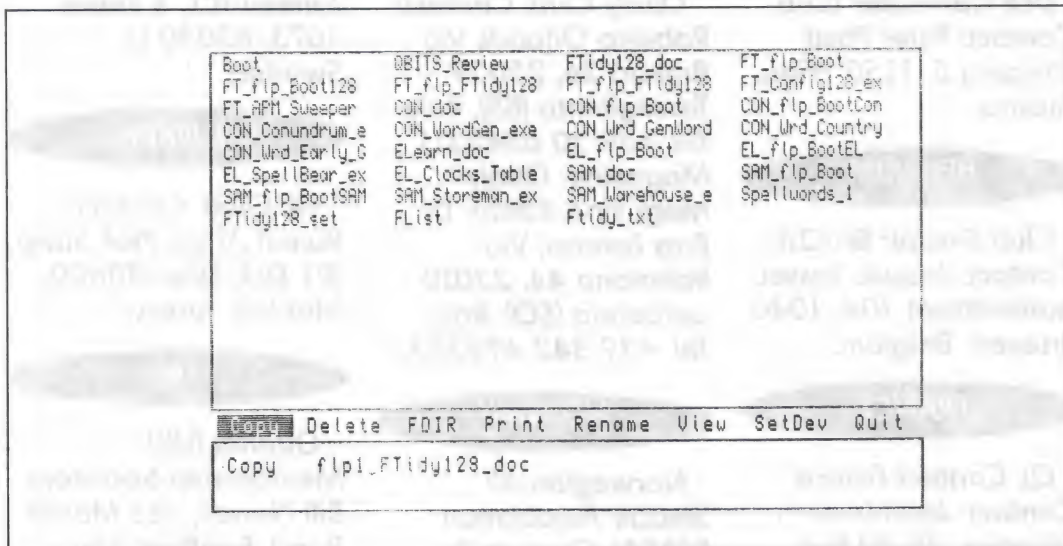
This program is a simple file-handling utility which has been written in SuperBasic and compiled using SuperCharge from Digital Precision. The manual is a very short and easy to understand Quill _doc file, which should be enough to get most users started. Users of an unexpanded QL will be pleased to know that the program does not require any toolkits or extensions in order to work.

When you first run the boot program on the supplied disk, you are given various options via a simple menu, to load either the main FTidy128 program or a configuration program; to return to Superbasic; to load 'APM Sweeper'; or to make a backup.

Backups

The first thing to do is make a backup of the disk. The supplied boot program does this easily, although there is nothing in the instructions to tell you how to alter the devices the files are to be copied to and from. A quick look at the Basic boot program reveals that the first couple of lines contain details of the source and destination drives. However, for the novice user, I would have preferred to see an input routine so that the user does not have to bother with the Basic program (especially as the two strings used to hold the names of the drives are not self-explanatory). In any event a little more explanation in the manual would help.

Having created the back-up copy, the next thing to do is to configure the program for your system. Choosing the option from the boot menu to load the configuration program, you are presented with a list of devices recognised by the program, and



printer codes for use with the print part of the program. You can select the default to be amended by using the cursor keys to select 'EDIT' and then moving the cursor onto the desired default. One thing I did not like about this configurator was the fact that when you were presented with the default to edit, an invisible cursor is placed at the end of the text and the left cursor key deletes a character rather than moving the cursor backwards. This makes it more difficult to correct typing errors. On the other hand, pressing 'h' will call up various notes on using the configurator, which is a nice touch.

The defaults which can be altered are three sets of source and device directories (nominally FLP1_/FLP2_, MDV1_/MDV2_ and RAM1_/RAM2_). These may need altering, for example, if your system uses FDK to access the disk drives. Having set this, you will also need to amend the Working device and Loading device which tell FTidy128 where to find its files. Unfortunately, the defaults can only be a maximum of five characters and you cannot therefore use sub-directories as the default.

Printers

Once the default devices are set-up for your system, you will need to amend the printer codes. As distributed, the program is set up for a Citizen 120D printer in FX80 compatible mode. You alter these defaults by using the cursor keys to select the printer command to be amended, press Space and then press the keys representing the codes to be sent to the printer (you will need to refer to your own printer manual for this). A maximum of five characters is permitted per command, so do not expect to be able to handle some laser printers with this program. The printer commands used by the program are: Preamble, Pitch (Pica), Left Margin, Expanded ON, Expanded OFF, Compressed ON, Compressed OFF and Form Feed.

Now you can enter the main FTidy128 program. The first problem I encountered is that the program fell over under Minerva 1.93 when attempting to carry out an OPEN_IN command. I can only assume that this is a compatibility problem, as the program worked correctly once I had invoked Toolkit II's version of OPEN_IN. I believe that the program will work without Toolkit II on other

rom versions (and possibly other versions of Minerva), I have however notified Qview. The program is displayed very nicely on screen, and includes the current date and time (excluding seconds) in the top right of the screen, together with the various commands available and a help screen. Commands are chosen with the cursor keys and Enter - choosing the command FDIR will produce a list on screen of all the files on the default source device. FTidy128 can display up

to 160 filenames, shown across the screen in up to four columns, each filename being truncated to 15 characters if necessary. In order to create the list, FTidy128 uses the standard DIR command, outputting the list to a temporary file (FList) on the source directory. Although this does mean that with Toolkit II, sub-directories are shown with the marker -> (as normal), it also means that the source disk must never be write-protected and must have some free space on it (something else the manual forgets to mention).

If there are too many files to fit on one screen, the program will automatically scroll up or down the list as you press the up/down cursor keys. However, you can also page through the list using Alt-up and Alt-down.

Subdirectories

If you wish, you can alter the source and destination filenames from within FTidy128, and in particular, this allows you to access sub-directories, as more than five characters can be entered. This actually proves quite useful, as when you ask FTidy128 to produce a list of the files on a subdirectory, the subdirectory name is removed from the front of the filenames.

Normally, with some programs which display lists, the whole of the filename (including the subdirectory) is listed, so that, where the filename is truncated to fit in a column, you are in danger of losing the actual name of each file. This should not happen with FTidy128 unless you have extremely long filenames.

Having obtained a list of the files on the source directory, you can opt to Copy selected files to the destination directory, Rename a file, Delete selected files from the source directory, view a file on screen or send it to the printer.

Both Copy and Delete allow you to select several files at the same time by highlighting the files. As you move around the list, the full name of the currently highlighted file is listed in a window. Once all the desired files are highlighted, Enter will implement the command. Unfortunately, you cannot escape from the process; you must select at least one file and then answer No when asked for confirmation. It would have been simpler if the Esc key was recognised. However, for commands which only allow you to select one file at a time, you just select the file using the

cursor keys and then press Enter to execute the command.

Each command will then list the full name of the selected files and offer you the option of proceeding or not. If you have chosen View, the desired file will be copied to the main window on the screen, allowing you to press Space to continue the listing or Enter to end it between each page of text. The total number of characters displayed is shown at the bottom of the screen.

Printouts

The Print command uses SuperBasic COPY_N to copy a file to the printer, using the printer control codes set with the configurator. The manual explains that you can print out a directory of the source device in three columns by using Print on the file 'FList'. Each file is printed out with the name of the disk, the number of free sectors, the date and time, and the name of the file being printed.

Overall, each utility provided with FTidy128 has been well thought out and provides a useful means of managing your files. The only comment I would make at this stage is that the manual, although sufficient to

get you started, could do with a little expansion here and there.

Minesweeper

Entirely separately from the FTidy128 program, the disk includes a simple game, called simply 'APM Sweeper' (or Anti-Personnel Mine Sweeper). This is a simple, well-written game where you go around a grid discovering where enemy mines have been planted.

There are three levels of difficulty, with the best score on each level being displayed at the bottom of the screen. A blank grid is displayed on screen, with the number of mines to be found at the top of the screen.

You can move around the grid using the cursor keys. Pressing Space will plant a flag, although the flag will only appear on the grid if it is on top of a mine. To find the mines, you need to press Enter, which will either kill you (if you are stood on top of a mine) and end the game, or (if you always start on an empty square), the eight squares surrounding the one on which you are standing will be filled with numbers. Each number represents the number of squares adjacent to that square

which contain a mine. By comparing the numbers, and with a little thought, you should be able to estimate which squares contain the mines.

You have to complete the game against the clock and you only have a limited number of flags. The game does not tell you how many flags you have left, and you are therefore destined either to find all of the mines or to use all of the flags - or get blown up!

The game is quite good and could be used as a mental arithmetic game for younger users. However, the graphics are not very good.

FTidy128 is quite a useful little utility, although it is a pity that it will not multitask (without the aid of a multitasking utility such as the Pointer Interface, which is not otherwise required to run the program). It certainly represents excellent value for money. The inclusion of the game adds nothing special to the package, but it could provide a useful diversion for younger users.

Incidentally, FTidy128 is not related to a public domain also utility called FTidy, although Qbits and the author of FTidy are discussing the possibility of putting both programs on one disk.

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